ImmPort Data Upload Templates Description

Schema Version 3.37

This document describes elements of the various templates used in the ImmPort data upload system.

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1. Introduction

1.1 ImmPort Data Upload Templates Use

This guide describes the structure and use of the ImmPort data upload templates. For each template, the purpose, structure (e.g. column headers), and data entry rules are described.

For additional information about the ImmPort Data Upload workflow, please see the ImmPort data upload user's guide and tutorials (http://immport.niaid.nih.gov/immportWeb/experimental/displayDataSubmitHome.do).

It is recommended that you open the Adobe Reader bookmarks option to see a list of the templates.

Each template includes a Schema Version tag. It is used by the ImmPort Data Package Validator and Upload Processing software to ensure the current version of the template is being used. The Schema version refers to the database schema structure and content (in particular the preferred terms and reference data). These version tags should not be modified by the user.

As a reminder, the spreadsheet versions of the templates are provided for benefit of the data providers to enable display of comments and lists in the spreadsheet. The templates uploaded to ImmPort should be saved as tab-delimited text files. Template names should match the names as they appear on the ImmPort web pages. File names are not case sensitive. However, downloading templates from a web browser may cause your computer to append a suffix to the file name and this will prevent ImmPort from recognizing a template name.

1.2 ImmPort Data Upload Packages

The ImmPort data upload workflow is intended to be incremental or modular. You can send one or a few ImmPort upload templates and associated files (e.g. protocols or results) in a data upload package ZIP archive. Or, you can send in many templates and associated files. The order of uploading templates (study before subject or subject before study?) is determined by what descriptive data is referenced within a template and therefore what dependencies exist for an uploaded template to be successfully processed. For example, successfully uploading a subject template requires that a protocol and study arm be referenced, so both the protocol and study design template need to be in the same ZIP archive as the subject template or already uploaded and processed in ImmPort. Individual files contained in the package cannot exceed 2 GBytes (2^31-1 = 2,147,483,647 bytes) in size.

1.3 ImmPort Data Model Overview

ImmPort's model for handling research data is to organize information into metadata or descriptive

categories. Each category has its own template (or suite of templates). The metadata categories and their functions are as follows:

Study: Studies provide the context and organization of a research effort. Studies organize subjects into groups (e.g. arms or cohorts) based on phenotype and/or treatment. The planned visit schedule provides a guide as to the temporal relationship between samples and encounters (i.e is the sample taken before or after a treatment). If the research includes seasonally variable treatments (e.g seasonal influenza vaccine), a separate study should be created for each season.

Subjects: Subjects may be patients or animals from which samples are taken for analysis. Two .xls templates (one for human and one for animal subjects) are available for recording subject information. In these files, treatment protocols used on the subjects can also be listed as well as many other details. Subjects are assigned to a single group (arm or cohort) within a study and maybe linked to multiple studies.

Biological Samples: Describe the types of samples taken from subjects or cell culture and processed for the experiment (i.e. organs, tissue, blood, plasma, cell culture name, etc.), when the samples were taken in the course of a study and protocols used in the sample collection, processing, and/or treatment. Samples are linked to a single study.

Experiments: Describe the measurement technique of the experiment and the links to protocols used in the experiment.

Experiment Samples: The biological samples analyzed in an experiment are linked to the assay reagent, protocol and results via the experiment sample record. Several different template files are available for listing sample details for different assay approaches. An experiment sample should be linked to a single biological sample.

Treatments: Describe the experimental conditions for specific biosamples or experiment samples. Treatments link to experiment samples as well as biosamples if needed.

Protocols: Describe the methods and procedures in studies, subject recruitment/treatment, sample collection/preparation/treatment and experiments. Protocols may be PDF files, Word documents, Excel or other file types.

Reagents: Provide detailed information about the reagents used in an experiment. Since different analysis platforms employ very different reagents, several different template files are available for listing reagent details for different assay approaches.

Table: Explanation of the Fields used to describe the Columns of the Template.

This table describes how each template's column is described.

Field Name	Description
Description:	The Description field provides a detailed description of the column of the Template
Required:	The Required Field can either have the values Yes or No. Yes means the user must enter data for this column. No means it is optional for the user to enter data for this column.
Lookup:	The Lookup Field can either have the values "None" or "Please refer to Appendix A - {Name of the Lookup table}". "None" means this column does not have a pre-defined set of values and no dropdown will be available in the template. "Please refer to Appendix A - {Name of the Lookup table}" means that this column has a pre-defined set of values and a drop-down will be available for the user to select from in the template. The user can click on the "Please refer to Appendix A-{Name of the Lookup}" link in the LookupField and it will take you to the section in Appendix A where the values for the corresponding lookup table are listed.
Comment:	The Comment Field text will be displayed in the template as a comment for the corresponding column. This field provides more information on what kind of data needs to be set for the column
Database Table:	The Database Table Field is the name of the database table which will store the data entered for this column by the user in the template.
Database Column:	The Database Column Field is the name of the column in the ImmPort database which will store the data entered for this column by the user in the template.
Database Type:	The Database Type Field is the data type of the column in the ImmPort database which will store the data entered for this column by the user in the template.

1.4 Template File Loading Order

ImmPort loads the template files in a specified loading order that is specified below in the following table.

Template File Loading Order
protocols.txt
reagents.array.txt
reagents.elisa.txt
reagents.elispot.txt
reagents.mbaa.txt

reagents.flow_cytometry.txt
reagents.hai.txt
reagents.cytof.txt
reagents.neutralizing_antibody_titer.txt
reagents.pcr.txt
reagents.sequencing.txt
reagents.virus_neutralization.txt
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experimentsamples.hla.txt
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experimentsamples.kir.txt
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experimentsamples.rna_sequencing.txt
experimentsamples.other.txt
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experimentsamples.mass_spectrometry_proteomics.txt
experimentsamples.elisa.txt
experimentsamples.elispot.txt
experimentsamples.hai.txt
experimentsamples.virus_neutralization.txt
experimentsamples.neutralizing_antibody_titer.txt
experimentsamples.qrt-pcr.txt
immuneexposure.txt
publicrepositories.txt
elisa_results.txt
elispot_results.txt
hai_results.txt
pcr_results.txt
virus_neutralization_results.txt
hla_typing.txt

kir_typing.txt
rna_seq_results.txt
mass_spectrometry_metabolomic_results.txt
mass_spectrometry_proteomic_results.txt
mbaa_results.txt
fcm_derived_data.txt
cytof_derived_data.txt

The next section describes each data upload template.

2. **adverseEvents.txt**

The Adverse Event Template reports adverse events that are recorded for subjects in a study.

adverseEvents.txt : User Defined ID	
Description:	The adverse event user defined ID is an identifier chosen by the data provider to refer to a adverse event. The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	adverse_event
Database Column:	user_defined_id
Database Column Type:	varchar(150)

adverseEvents.txt : Subject ID	
Description:	Please enter either a subject user defined ID or ImmPort accession for the subject for the reported adverse event.
Required:	Yes
Lookup:	None
Comment:	Please enter either a subject user defined ID or ImmPort accession for the subject for the reported adverse event.
Database Table:	adverse_event
Database Column:	subject_accession
Database Column Type:	varchar(15)

adverseEvents.txt : Study ID	
Description:	An adverse event may be linked to a single study.

Required:	Yes
Lookup:	None
Comment:	Please enter either a study user defined ID or ImmPort accession for the study in which the reported adverse event occurred.
Database Table:	adverse_event
Database Column:	study_accession
Database Column Type:	varchar(15)

adverseEvents.txt : Name Reported	
Description:	The adverse event name is a display name that is available when the data is shared, but it is not referenced by other data..
Required:	Yes
Lookup:	None
Comment:	The adverse event name is an alternate identifier that is visible when the adverse event is shared.
Database Table:	adverse_event
Database Column:	name_reported
Database Column Type:	varchar(126)

adverseEvents.txt : Name Preferred	
Description:	The preferred adverse event name is a term from the MedDRA (www.meddra.org) adverse event classification dictionary. This is an optional term and often updated by ImmPort staff by mapping AE reported names to MedDRA terms.
Required:	No
Lookup:	None

Comment:	The preferred adverse event name is a term from the MedDRA (www.meddra.org) adverse event classification dictionary.
Database Table:	adverse_event
Database Column:	name_preferred
Database Column Type:	varchar(126)

adverseEvents.txt : Severity Reported	
Description:	The severity value is chosen from a list of preferred terms.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_adverse_event_severity with preferred column(s) severity_preferred.
Comment:	The severity value is chosen from a list of preferred terms.
Database Table:	adverse_event
Database Column:	severity_reported
Database Column Type:	varchar(60)

adverseEvents.txt : Outcome Reported	
Description:	Describe the outcome of the adverse event.
Required:	Yes
Lookup:	None
Comment:	The outcome of the adverse event.
Database Table:	adverse_event
Database Column:	outcome_reported

Database Column Type:	varchar(40)

adverseEvents.txt : Start Study Day	
Description:	The study day in which the adverse event was initially reported.
Required:	No
Lookup:	None
Comment:	The study day in which the adverse event was initially reported.
Database Table:	adverse_event
Database Column:	start_study_day
Database Column Type:	float

adverseEvents.txt : End Study Day	
Description:	The study day in which the adverse event ceased.
Required:	No
Lookup:	None
Comment:	The study day in which the adverse event ceased.
Database Table:	adverse_event
Database Column:	end_study_day
Database Column Type:	float

adverseEvents.txt : Relation To Study Treatment	
Description:	Was the adverse event believed to be related to a study intervention.
Required:	Yes

Lookup:	None
Comment:	Was the adverse event believed to be related to a study intervention.
Database Table:	adverse_event
Database Column:	relation_to_study_treatment
Database Column Type:	varchar(250)

adverseEvents.txt : Organ Or Body System Reported	
Description:	Which portion(s) of the subject was affected by the adverse event.
Required:	No
Lookup:	None
Comment:	Which portion(s) of the subject was affected by the adverse event.
Database Table:	adverse_event
Database Column:	organ_or_body_system_reported
Database Column Type:	varchar(126)

adverseEvents.txt : Description	
Description:	A lengthier description of the adverse event.
Required:	No
Lookup:	None
Comment:	A lengthier description of the adverse event.
Database Table:	adverse_event
Database Column:	description

Database Column Type:	varchar(4000)

adverseEvents.txt : Location Of Reaction Reported	
Description:	Where on/in the subject was the adverse event reported.
Required:	No
Lookup:	None
Comment:	Where on/in the subject was the adverse event reported.
Database Table:	adverse_event
Database Column:	location_of_reaction_reported
Database Column Type:	varchar(126)

adverseEvents.txt : Study Treatment Action Taken	
Description:	What was done to address the adverse event.
Required:	No
Lookup:	None
Comment:	What was done to address the adverse event.
Database Table:	adverse_event
Database Column:	study_treatment_action_taken
Database Column Type:	varchar(250)

adverseEvents.txt : Relation To Nonstudy Treatment	
Description:	Was the adverse event related to some non-study intervention.
Required:	No

Lookup:	None
Comment:	Was the adverse event related to some non-study intervention.
Database Table:	adverse_event
Database Column:	relation_to_nonstudy_treatment
Database Column Type:	varchar(250)

adverseEvents.txt : Causality	
Description:	Was the adverse event believed to be casued by a study intervention.
Required:	No
Lookup:	None
Comment:	Was the adverse event believed to be caused by a study intervention.
Database Table:	adverse_event
Database Column:	causality
Database Column Type:	varchar(250)

adverseEvents.txt : Start Time	
Description:	Allows for describing the time during a study day in which an adverse event was reported.
Required:	No
Lookup:	None
Comment:	Allows for describing the time during a study day in which an adverse event was reported.
Database Table:	adverse_event
Database Column:	start_time

Database Column Type:	varchar(40)

adverseEvents.txt : End Time	
Description:	Allows for describing the time during a study day in which an adverse event was reported.
Required:	No
Lookup:	None
Comment:	Allows for describing the time during a study day in which an adverse event was reported.
Database Table:	adverse_event
Database Column:	end_time
Database Column Type:	varchar(40)

3. **assessmentcomponent.txt**

The assessment an be either new or pre-defined in this template. Any combination is acceptable. The only restriction is that the assessment panel id is the key to the template and must be unique within the template.

assessmentcomponent.txt : User Defined ID	
Description:	The assessment component user defined ID is an identifier chosen by the data provider to refer to an assessment. The user defined ID is not shared
Required:	Yes
Lookup:	None
Comment:	Please enter either an assessment component user defined ID or ImmPort accession.
Database Table:	assessment_component
Database Column:	user_defined_id
Database Column Type:	varchar(200)

assessmentcomponent.txt : Assessment Panel ID	
Description:	Please enter either a assessment panel user defined ID or ImmPort accession for the assessment panel.
Required:	Yes
Lookup:	None
Comment:	Please enter either a assessment panel user defined ID or ImmPort accession for the assessment_panel.
Database Table:	assessment_component
Database Column:	assessment_panel_accession
Database Column Type:	varchar(15)

assessmentcomponent.txt : Subject ID

Description:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived. A single subject record is permitted.
Required:	Yes
Lookup:	None
Comment:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived.
Database Table:	assessment_component
Database Column:	subject_accession
Database Column Type:	varchar(15)

assessmentcomponent.txt : Planned Visit ID	
Description:	The link to a study's planned visit provides temporal context for a subjects assessment during the course of a study.
Required:	Yes
Lookup:	None
Comment:	Please enter either a study's planned visit user defined ID or ImmPort accession.
Database Table:	assessment_component
Database Column:	planned_visit_accession
Database Column Type:	varchar(15)

assessmentcomponent.txt : Name Reported	
Description:	The assessment component name is a display name that is available when the data is shared, but it is not referenced by other data.
Required:	Yes
Lookup:	None

Comment:	The assessment component name is an alternate identifier that is visible when the sample is shared.
Database Table:	assessment_component
Database Column:	name_reported
Database Column Type:	varchar(150)

assessmentcomponent.txt : Study Day	
Description:	Study time collected describes the time value for when the assessment was completed.
Required:	Yes
Lookup:	None
Comment:	Please enter a number.
Database Table:	assessment_component
Database Column:	study_day
Database Column Type:	float

assessmentcomponent.txt : Result Value Reported	
Description:	The assessment component value is often the response to a question in a CRF.
Required:	No
Lookup:	None
Comment:	The assessment component value is often the response to a question in a CRF.
Database Table:	assessment_component
Database Column:	result_value_reported

Database Column Type:	varchar(250)

assessmentcomponent.txt : Result Unit Reported	
Description:	The unit for the assessment value.
Required:	No
Preferred Lookup:	Please refer to Appendix A - lk_unit_of_measure with preferred column(s) unit_of_measure_preferred.
Comment:	The unit for the assessment value.
Database Table:	assessment_component
Database Column:	result_unit_reported
Database Column Type:	varchar(40)

assessmentcomponent.txt : Result Value Category	
Description:	Suggested terms include Mild, Moderate, and Severe.
Required:	No
Lookup:	None
Comment:	A categorical representation of the assessment value.
Database Table:	assessment_component
Database Column:	result_value_category
Database Column Type:	varchar(40)

assessmentcomponent.txt : Age At Onset Reported

Description:	Please indicate the age at which a condition reported in the assessment occurred. This column is optional unless units (Age At Onset Unit Reported) is provided.
Required:	No
Lookup:	None
Comment:	Please enter a number.
Database Table:	assessment_component
Database Column:	age_at_onset_reported
Database Column Type:	varchar(100)

assessmentcomponent.txt : Age At Onset Unit Reported	
Description:	The time unit for the age of onset value. This column is optional unless value (Age At Onset Reported) is provided.
Required:	No
Preferred Lookup:	Please refer to Appendix A - lk_preferred_time_unit with preferred column(s) time_unit_preferred.
Comment:	Suggested values include Days, Months, Years.
Database Table:	assessment_component
Database Column:	age_at_onset_unit_reported
Database Column Type:	varchar(25)

assessmentcomponent.txt : Is Clinically Significant	
Description:	Is the condition reported in the assessment significant for the study analysis?
Required:	No
Lookup:	None
Comment:	Please enter a 'Y' or 'N.'

Database Table:	assessment_component
Database Column:	is_clinically_significant
Database Column Type:	varchar(1)

assessmentcomponent.txt : Location Of Finding Reported	
Description:	Please use SnoMED CT terms if possible.
Required:	No
Lookup:	None
Comment:	Where on the subject's body does the condition reported in the assessment occur?
Database Table:	assessment_component
Database Column:	location_of_finding_reported
Database Column Type:	varchar(256)

assessmentcomponent.txt : Organ Or Body System Reported	
Description:	Please use SnoMED CT terms if possible.
Required:	No
Lookup:	None
Comment:	What is the organ or body system affected by the condition reported in the assessment?
Database Table:	assessment_component
Database Column:	organ_or_body_system_reported
Database Column Type:	varchar(100)

assessmentcomponent.txt : Subject Position Reported	
Description:	Suggested terms include prone, supine, seated, and standing.
Required:	No
Lookup:	None
Comment:	The position the subject was in when the assessment was completed.
Database Table:	assessment_component
Database Column:	subject_position_reported
Database Column Type:	varchar(40)

assessmentcomponent.txt : Time Of Day	
Description:	There are no preferrred response values.
Required:	No
Lookup:	None
Comment:	When during the day was the assessment completed.
Database Table:	assessment_component
Database Column:	time_of_day
Database Column Type:	varchar(40)

assessmentcomponent.txt : Verbatim Question	
Description:	What is the wording of the question to elicit the assessment result?
Required:	No
Lookup:	None

Comment:	What is the actual question in the CRF?
Database Table:	assessment_component
Database Column:	verbatim_question
Database Column Type:	varchar(250)

assessmentcomponent.txt : Who Is Assessed	
Description:	Assessments can include study subject medical history and/or family history.
Required:	No
Lookup:	None
Comment:	Is the study subject assessed or a member of the study subject's family?
Database Table:	assessment_component
Database Column:	who_is_assessed
Database Column Type:	varchar(40)

4. **assessmentpanel.txt**

The assessment panel can be either new or pre-defined in this template. Any combination is acceptable. The only restriction is that the assessment panel id is the key to the template and must be unique within the template.

4.1. Assessment Panel Meta Data Columns

The Assessment Panel Meta Data Columns include the columns for the combined entity Assessment Panel.

Assessment Panel Meta Data Column assessmentpanel.txt : User Defined ID	
Description:	The assessment panel user defined ID is an identifier chosen by the data provider to refer to a set of assessments, often organized into a Case Report Form. This ID may be referenced by other data records (e.g. assessment). The user defined ID is not shared
Required:	Yes
Lookup:	None
Comment:	Please enter either an assessment panel user defined ID or ImmPort accession.
Database Table:	assessment_panel
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Assessment Panel Meta Data Column assessmentpanel.txt : Study ID	
Description:	An assessment panel may be linked to a single study.
Required:	Yes
Lookup:	None
Comment:	Please enter either a study user defined ID or ImmPort accession. This column is only required when both the assessment panel is new.
Database Table:	assessment_panel
Database Column:	study_accession

Database Column Type:	varchar(15)

Assessment Panel Meta Data Column assessmentpanel.txt : Name Reported	
Description:	The assessment panel name is a display name that is available when the data is shared, but it is not referenced by other data.
Required:	Yes
Lookup:	None
Comment:	The assessment panel name is an alternate identifier that is visible when the assessment panel is shared.
Database Table:	assessment_panel
Database Column:	name_reported
Database Column Type:	varchar(125)

Assessment Panel Meta Data Column assessmentpanel.txt : Assessment Type	
Description:	The assessment type is not a constrained list of terms and suggested values include Physical Exam, Questionnaire, Medical History, Family History.
Required:	No
Lookup:	None
Comment:	Suggested values include Physical Exam, Questionnaire, Medical History, Family History.
Database Table:	assessment_panel
Database Column:	assessment_type
Database Column Type:	varchar(125)

Assessment Panel Meta Data Column assessmentpanel.txt : Status

Description:	The assessment status is not a constrained list of terms and suggested values include Completed, Partial, and Not Completed.
Required:	No
Lookup:	None
Comment:	The assessment status is not a constrained list of terms and suggested values include Completed, Partial, and Not Completed.
Database Table:	assessment_panel
Database Column:	status
Database Column Type:	varchar(40)

Assessment Panel Meta Data Column assessmentpanel.txt : CRF File Names	
Description:	Separate file names by a semi-colon (;). The file size name limit is 240 characters.
Required:	No
Lookup:	None
Comment:	Please enter CRF file(s) to link to the assessment panel. Separate file names by a semi-colon (;). The file size name limit is 240 characters.

5. **assessments.txt**

The assessment panels template defines and annotates the assessment panels and the assessment components (results) defines and annotates the assessment for the panel. Assessment panels are often encoded in Case Report Forms (CRFs) and these are linked to a study. Assessment components are the answers to questions or assessments recorded in a CRF for a given subject within a study. The assessment template enables you to define the panel and its components in a single form. The assessment panel can be either new or pre-defined in this template. Any combination is acceptable. The only restriction is that the assessment panel id is the key to the template and must be unique within the template.

5.1. Subject Meta Data Column

The Subject Meta Data Columns include the columns for the combined entity Subject.

Subject Meta Data Column assessments.txt : Subject ID	
Description:	Please enter either a subject user defined ID or ImmPort accession for the subject for the subject from which the assessment was completed. A single subject record is permitted.
Required:	Yes
Lookup:	None
Comment:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the assessment was completed.
Database Table:	subject
Database Column:	user_defined_id
Database Column Type:	varchar(100)

5.2. Assessment Panel Meta Data Columns

The Assessment Panel Meta Data Columns include the columns for the combined entity Assessment Panel.

Assessment Panel Meta Data Column assessments.txt : Assessment Panel ID	
Description:	The assessment panel user defined ID is an identifier chosen by the data provider to refer to a set of assessments, often organized into a Case Report Form. This ID may be referenced by other data records (e.g. assessment). The user defined ID is not shared
Required:	Yes
Lookup:	None

Comment:	Please enter either an assessment panel user defined ID or ImmPort accession.
Database Table:	assessment_panel
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Assessment Panel Meta Data Column assessments.txt : Study ID	
Description:	An assessment panel may be linked to a single study.
Conditional Required:	Yes for **New Assessment Panel**
Lookup:	None
Comment:	Please enter either a study user defined ID or ImmPort accession. This column is only required when both the assessment panel is new.
Database Table:	assessment_panel
Database Column:	study_accession
Database Column Type:	varchar(15)

Assessment Panel Meta Data Column assessments.txt : Name Reported	
Description:	The assessment panel name is a display name that is available when the data is shared, but it is not referenced by other data.
Conditional Required:	Yes for **New Assessment Panel**
Lookup:	None
Comment:	The assessment panel name is an alternate identifier that is visible when the assessment panel is shared.
Database Table:	assessment_panel

Database Column:	name_reported
Database Column Type:	varchar(125)

Assessment Panel Meta Data Column assessments.txt : Assessment Type	
Description:	The assessment type is not a constrained list of terms and suggested values include Physical Exam, Questionnaire, Medical History, Family History.
Required:	No
Lookup:	None
Comment:	Suggested values include Physical Exam, Questionnaire, Medical History, Family History.
Database Table:	assessment_panel
Database Column:	assessment_type
Database Column Type:	varchar(125)

Assessment Panel Meta Data Column assessments.txt : Status	
Description:	The assessment status is not a constrained list of terms and suggested values include Completed, Partial, and Not Completed.
Required:	No
Lookup:	None
Comment:	The assessment status is not a constrained list of terms and suggested values include Completed, Partial, and Not Completed.
Database Table:	assessment_panel
Database Column:	status
Database Column Type:	varchar(40)

Assessment Panel Meta Data Column assessments.txt : CRF File Names	
Description:	Separate file names by a semi-colon (;). The file size name limit is 240 characters.
Required:	No
Lookup:	None
Comment:	Please enter CRF file(s) to link to the assessment panel. Separate file names by a semi-colon (;). The file size name limit is 240 characters.

5.3. Separator Column

This column must always appear in the template and must immediately follow after the last meta data column and before the (repeating) result column groups.

Separator Column assessments.txt : Result Separator Column	
Description:	This pseudo column separates meta data from results.
Required:	No
Lookup:	None
Comment:	This pseudo column separates the results (assessment components) from the assessment panel meta data. It must always appear and be the column that appears immediately after the last meta-data column and before any result columns.

5.4. Result Columns

Each result group (that is, result) consists of a group of the following result columns, where the **first column** of the group must always be '**User Defined ID**'.

Result Column assessments.txt : User Defined ID	
Description:	The assessment component user defined ID is an identifier chosen by the data provider to refer to this assessment result. An assessment component is a portion of an assessment panel. The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The assessment component identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	assessment_component

Database Column:	user_defined_id
Database Column Type:	varchar(200)

Result Column assessments.txt : Planned Visit ID	
Description:	The link to a study's planned visit provides temporal context for a subjects assessment during the course of a study.
Required:	Yes
Lookup:	None
Comment:	Please enter either a study's planned visit user defined ID or ImmPort accession.
Database Table:	assessment_component
Database Column:	planned_visit_accession
Database Column Type:	varchar(15)

Result Column assessments.txt : Name Reported	
Description:	The assessment component name is a display name that is available when the data is shared, but it is not referenced by other data.
Required:	Yes
Lookup:	None
Comment:	The assessment component name is an alternate identifier that is visible when the sample is shared.
Database Table:	assessment_component
Database Column:	name_reported
Database Column Type:	varchar(150)

Result Column assessments.txt : Study Day	
Description:	Study time collected describes the time value for when the assessment was completed.
Required:	Yes
Lookup:	None
Comment:	Please enter a number.
Database Table:	assessment_component
Database Column:	study_day
Database Column Type:	float

Result Column assessments.txt : Age At Onset Reported	
Description:	Please indicate the age at which a condition reported in the assessment occurred. This column is optional unless units (Age At Onset Unit Reported) is provided.
Required:	No
Lookup:	None
Comment:	Please enter a number.
Database Table:	assessment_component
Database Column:	age_at_onset_reported
Database Column Type:	varchar(100)

Result Column assessments.txt : Age At Onset Unit Reported	
Description:	The time unit for the age of onset value. This column is optional unless value (Age At Onset Reported) is provided.
Required:	No

Preferred Lookup:	Please refer to Appendix A - lk_preferred_time_unit with preferred column(s) time_unit_preferred.
Comment:	Suggested values include Days, Months, Years.
Database Table:	assessment_component
Database Column:	age_at_onset_unit_reported
Database Column Type:	varchar(25)

Result Column assessments.txt : Is Clinically Significant	
Description:	Is the condition reported in the assessment significant for the study analysis?
Required:	No
Lookup:	None
Comment:	Please enter a 'Y' or 'N.'
Database Table:	assessment_component
Database Column:	is_clinically_significant
Database Column Type:	varchar(1)

Result Column assessments.txt : Location Of Finding Reported	
Description:	Please use SnoMED CT terms if possible.
Required:	No
Lookup:	None
Comment:	Where on the subject's body does the condition reported in the assessment occur?
Database Table:	assessment_component
Database Column:	location_of_finding_reported

Database Column Type:	varchar(256)

Result Column assessments.txt : Organ Or Body System Reported	
Description:	Please use SnoMED CT terms if possible.
Required:	No
Lookup:	None
Comment:	What is the organ or body system affected by the condition reported in the assessment?
Database Table:	assessment_component
Database Column:	organ_or_body_system_reported
Database Column Type:	varchar(100)

Result Column assessments.txt : Result Value Reported	
Description:	The assessment component value is often the response to a question in a CRF.
Required:	No
Lookup:	None
Comment:	The assessment component value is often the response to a question in a CRF.
Database Table:	assessment_component
Database Column:	result_value_reported
Database Column Type:	varchar(250)

Result Column assessments.txt : Result Unit Reported

Description:	The unit for the assessment value.
Required:	No
Preferred Lookup:	Please refer to Appendix A - lk_unit_of_measure with preferred column(s) unit_of_measure_preferred.
Comment:	The unit for the assessment value.
Database Table:	assessment_component
Database Column:	result_unit_reported
Database Column Type:	varchar(40)

Result Column assessments.txt : Result Value Category	
Description:	Suggested terms include Mild, Moderate, and Severe.
Required:	No
Lookup:	None
Comment:	A categorical representation of the assessment value.
Database Table:	assessment_component
Database Column:	result_value_category
Database Column Type:	varchar(40)

Result Column assessments.txt : Subject Position Reported	
Description:	Suggested terms include prone, supine, seated, and standing.
Required:	No
Lookup:	None
Comment:	The position the subject was in when the assessment was completed.
Database Table:	assessment_component

Database Column:	subject_position_reported
Database Column Type:	varchar(40)

Result Column assessments.txt : Time Of Day	
Description:	There are no preferrred response values.
Required:	No
Lookup:	None
Comment:	When during the day was the assessment completed.
Database Table:	assessment_component
Database Column:	time_of_day
Database Column Type:	varchar(40)

Result Column assessments.txt : Verbatim Question	
Description:	What is the wording of the question to elicit the assessment result?
Required:	No
Lookup:	None
Comment:	What is the actual question in the CRF?
Database Table:	assessment_component
Database Column:	verbatim_question
Database Column Type:	varchar(250)

Result Column assessments.txt : Who Is Assessed

Description:	Assessments can include study subject medical history and/or family history.
Required:	No
Lookup:	None
Comment:	Is the study subject assessed or a member of the study subject's family?
Database Table:	assessment_component
Database Column:	who_is_assessed
Database Column Type:	varchar(40)

6. **basic_study_design.txt**

The basic study design template defines and annotates key elements of a study including the purpose, subject grouping, schedule of events, personnel, and references (weblinks, publications). Use the study_design_edit template to add additional information for a study after a study is defined in ImmPort. The basic study design template consists of several sections or compound templates. Some compound templates are required: study, arm_or_cohort, inclusion_exclusion, planned_visit, study_2_condition_or_disease, study_2_protocol, study_categorization, study_personnel. Other compound templates are optional: study_file, study_link, and study_pubmed.

6.1. Study

The basic study design template defines and annotates key elements of a study including the purpose, subject grouping, schedule of events, personnel, and references (weblinks, publications). Studies involving seasonal variables (e.g. influenza vaccincations) should be defined to ImmPort as single season studies with as many studies defined as seasons included in the research.
The compound template Study is required.

Study : User Defined ID	
Description:	The study user defined ID is an identifier chosen by the data provider to refer to a study design. This ID may be referenced by other data records (e.g. arm). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	study
Database Column:	user_defined_id
Database Column Type:	varchar(150)

Study : Brief Title	
Description:	The brief title will be displayed on ImmPort wherever the study is described.
Required:	Yes
Lookup:	None
Comment:	The brief title serves as a working title for a study.

Database Table:	study
Database Column:	brief_title
Database Column Type:	varchar(250)

Study : Official Title	
Description:	The official study title is displayed on the ImmPort study detail page.
Required:	Yes
Lookup:	None
Comment:	The official study title may be the same as the brief title, but is often more descriptive.
Database Table:	study
Database Column:	official_title
Database Column Type:	varchar(500)

Study : Brief Description	
Description:	A brief study description highlights the essential features of a study.
Required:	Yes
Lookup:	None
Comment:	Summarize the goals, methods and results of the study.
Database Table:	study
Database Column:	brief_description
Database Column Type:	varchar(4000)

Study : Description	
Description:	The detailed description can be formatted with html tags to improve legibility. Embedded new line characters should be removed.
Required:	Yes
Lookup:	None
Comment:	The detailed description supports a lengthy description of the goals and methods of the study.
Database Table:	study
Database Column:	description
Database Column Type:	clob

Study : Intervention Agent	
Description:	If a study is interventional or has an interventional component, a short descriptive name of the intervention agent is requested.
Required:	Yes
Lookup:	None
Comment:	IA brief description of the study's interventional component (e.g. influenza vaccine).
Database Table:	study
Database Column:	intervention_agent
Database Column Type:	varchar(1000)

Study : Endpoints	
Description:	The endpoints can be formatted with html tags to improve legibility. Embedded new line characters should be removed.
Required:	Yes

Lookup:	None
Comment:	Endpoints include assessments, lab tests and assays that are part of a study design.
Database Table:	study
Database Column:	endpoints
Database Column Type:	clob

Study : Sponsoring Organization	
Description:	The organization that provides funding and support for the study.
Required:	Yes
Lookup:	None
Comment:	The organization that provides funding and support for the study.
Database Table:	study
Database Column:	sponsoring_organization
Database Column Type:	varchar(250)

Study : Age Unit	
Description:	The unit of time used to describe the subject's age in the study. The unit of time for a subject must conform to this unit.
Required:	Yes
Controlled Lookup:	Please refer to Appendix A - lk_time_unit.
Comment:	The unit of time used to describe the subject's age in the study. The unit of time for a subject must conform to this unit.
Database Table:	study

Database Column:	age_unit
Database Column Type:	varchar(25)

Study : Actual Start Date	
Description:	The date format is either dd-MMM-yy or dd-MMM-yyyy where day (dd) is one or two digits 1..31 appropriate to the month, month (MMM) is case-insensitive value (Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec), and year is either (yy) two digits, for example 05 means 2005, and 96 means 1996, or (yyyy) is four digit year, for example 2005.
Required:	No
Lookup:	None
Comment:	The commencement time point of the study. The date format is either dd-MMM-yy or dd-MMM-yyyy.
Database Table:	study
Database Column:	actual_start_date
Database Column Type:	date

Study : Planned Public Release Date	
Description:	The date format is either dd-MMM-yy or dd-MMM-yyyy where day (dd) is one or two digits 1..31 appropriate to the month, month (MMM) is case-insensitive value (Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec), and year is either (yy) two digits, for example 05 means 2005, and 96 means 1996, or (yyyy) is four digit year, for example 2005.
Required:	No
Lookup:	None
Comment:	Projected date for the release of the study to the public. The date format is either dd-MMM-yy or dd-MMM-yyyy.
Database Table:	study
Database Column:	planned_public_release_date

Database Column Type:	date

Study : Hypothesis	
Description:	The hypothesis can be formatted with html tags to improve legibility. Embedded new line characters should be removed.
Required:	No
Lookup:	None
Comment:	The explanatory proposition(s) being tested by the research study.
Database Table:	study
Database Column:	hypothesis
Database Column Type:	varchar(4000)

Study : Objectives	
Description:	The objectives can be formatted with html tags to improve legibility. Embedded new line characters should be removed.
Required:	No
Lookup:	None
Comment:	The goals of the research study.
Database Table:	study
Database Column:	objectives
Database Column Type:	clob

Study : Target Enrollment	
Description:	The number of subjects proposed to be enrolled in the study.

Required:	No
Lookup:	None
Comment:	The number of subjects proposed to be enrolled in the study.
Database Table:	study
Database Column:	target_enrollment
Database Column Type:	integer

Study : Minimum Age	
Description:	The minimum age of subjects enrolled in the study.
Required:	No
Lookup:	None
Comment:	The minimum age of subjects enrolled in the study.
Database Table:	study
Database Column:	minimum_age
Database Column Type:	varchar(40)

Study : Maximum Age	
Description:	The maximum age of subjects enrolled in the study.
Required:	No
Lookup:	None
Comment:	The maximum age of subjects enrolled in the study.
Database Table:	study
Database Column:	maximum_age

Database Column Type:	varchar(40)

6.2. Study_categorization

The compound template Study_categorization is required.

Study_categorization : Research Focus	
Description:	A research focus for the study from the drop down list
Required:	Yes
Controlled Lookup:	Please refer to Appendix A - lk_research_focus.
Comment:	Please use the drop down list
Database Table:	study_categorization
Database Column:	research_focus
Database Column Type:	varchar(50)

6.3. Study_2_condition_or_disease

The compound template Study_2_condition_or_disease is required.

Study_2_condition_or_disease : Condition Reported	
Description:	The condition(s)/disease(s) that is (are) being researched or evaluated in the study. Please select condition or disease from the list provided if the condition or disease matches yours or enter a condition or disease if there is not an appropriate one provided. Values provided by the user are further checked against the pref mapping table lk_study_condition_pref_mappng.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_disease_condition with preferred column(s) condition_preferred. Also, please refer to Appendix A - lk_study_condition_pref_mappng for Pref Mapping with preferred column(s) condition_preferred.

Comment:	The condition(s)/disease(s) that is (are) being researched or evaluated in the study. Please select condition or disease from the list provided if the condition or disease matches yours or enter a condition or disease if there is not an appropriate one provided. Values provided by the user are further checked against the pref mapping table lk_study_condition_pref_mappng.
Database Table:	study_2_condition_or_disease
Database Column:	condition_reported
Database Column Type:	varchar(550)

6.4. Arm_or_cohort

The compound template Arm_or_cohort is required.

Arm_or_cohort : User Defined ID	
Description:	The study's arm(s) or cohort(s) group subjects by criteria relevant to the study (e.g. age, condition) and/or treatments or interventions. Insert rows in the template to define additional arms or cohorts linked to the study. Use the study_design_edit template to add additional records after a study is defined in ImmPort.
Required:	Yes
Lookup:	None
Comment:	The arm or cohort user defined ID is an identifier chosen by the data provider to refer to a subject grouping in the study document. This ID may be referenced by other data records (e.g. subjects). The user defined ID is not shared.
Database Table:	arm_or_cohort
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Arm_or_cohort : Name	
Description:	The arm or cohort name is not referenced by other data records.
Required:	Yes

Lookup:	None
Comment:	The arm or cohort name is an alternate identifier that is visible when the study is shared.
Database Table:	arm_or_cohort
Database Column:	name
Database Column Type:	varchar(126)

Arm_or_cohort : Description	
Description:	The description should expand any abbreviations used in the arm or cohort name. For example for an observational study with a cohort whose name was "ADEH+", the description would be "Atopic dermatitis with eczema herpeticum".
Required:	Yes
Lookup:	None
Comment:	The description should expand any abbreviations used in the arm or cohort name.
Database Table:	arm_or_cohort
Database Column:	description
Database Column Type:	varchar(4000)

Arm_or_cohort : Type Reported	
Description:	The drop down list provides the list of preferred study arm types derived from the National Cancer Institute Thesaurus (NCIT). For an interventional study, the type defines the treatment/control attributes of the arms. The attributes are selected from the values listed below (a study may have more than one arm of a given value). Clinical studies often use the following terms. Experimental - Arm for procedure or drug being evaluated. Active Comparator - arm receiving "standard of care" treatment. Placebo Comparator - arm receiving placebo treatment. Sham Comparator - arm receiving a sham procedure such as a urgery or a sham device. No Intervention - arm receiving neither "standard of care" treatment a placebo, or sham procedure or device. For an observational study, the type should be Observational - All arms are observing differences in cohorts

Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_arm_type with preferred column(s) type_preferred. Also, please refer to Appendix A - lk_arm_type_pref_mapping for Pref Mapping with preferred column(s) type_preferred.
Comment:	Please select a preferred arm study type from the the drop down list. Terms are derived from the National Cancer Institute Thesaurus (NCIT). The study arm type is a preferred value and the table lk_arm_type_pref_mapping is also used to map the reported type to the drop down list (lk_arm_type).
Database Table:	arm_or_cohort
Database Column:	type_reported
Database Column Type:	varchar(40)

6.5. Study_personnel

The compound template Study_personnel is required.

Study_personnel : User Defined ID	
Description:	The personnel user defined ID is an identifier chosen by the data provider to refer to personnel who may be contacted for more details about the study document. If more than one study personnel record is to be defined, copy the block of rows from Study_Personnel_ID to Site_Name for each additional study personnel record. Use the study_design_edit template to add additional records after a study is defined in ImmPort.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	study_personnel
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Study_personnel : Honorific

Description:	Usually, the education achievement level of the person.
Required:	No
Lookup:	None
Comment:	Usually, the education achievement level of the person.
Database Table:	study_personnel
Database Column:	honorific
Database Column Type:	varchar(20)

Study_personnel : Last Name	
Description:	The last name of the study personnel being described.
Required:	Yes
Lookup:	None
Comment:	The last name of the study personnel being described.
Database Table:	study_personnel
Database Column:	last_name
Database Column Type:	varchar(40)

Study_personnel : First Name	
Description:	The first name of the study personnel being described.
Required:	Yes
Lookup:	None
Comment:	The first name of the study personnel being described.
Database Table:	study_personnel

Database Column:	first_name
Database Column Type:	varchar(40)

Study_personnel : Suffixes	
Description:	Suffixes that are part of the study personnel's name being described.
Required:	No
Lookup:	None
Comment:	Suffixes that are part of the study personnel's name being described.
Database Table:	study_personnel
Database Column:	suffixes
Database Column Type:	varchar(40)

Study_personnel : Organization	
Description:	The organization with whom the study personnel being described is affiliated.
Required:	Yes
Lookup:	None
Comment:	The organization with whom the study personnel being described is affiliated.
Database Table:	study_personnel
Database Column:	organization
Database Column Type:	varchar(125)

Study_personnel : ORCID ID

Description:	ORCID (Open Researcher and Contributor Identification), a non-profit organization that promotes the use of its unique digital identifier to connect researchers with their science contributions over time and across changes of name, location and institutional affiliation. The NIH encourages use of this ID. See the link https://nexus.od.nih.gov/all/2019/08/05/linking-orcid-identifiers-to-era-profiles-to-streamline-application-processes-and-to-enhance-tracking-of-career-outcomes/.
Required:	No
Lookup:	None
Comment:	ORCID (Open Researcher and Contributor Identification), a non-profit organization that promotes the use of its unique digital identifier to connect researchers with their science contributions over time and across changes of name, location and institutional affiliation. The NIH encourages use of this ID.
Database Table:	study_personnel
Database Column:	orcid
Database Column Type:	varchar(1000)

Study_personnel : Email	
Description:	Contact information of the study personnel being described.
Required:	Yes
Lookup:	None
Comment:	Contact information of the study personnel being described.
Database Table:	study_personnel
Database Column:	email
Database Column Type:	varchar(100)

Study_personnel : Title In Study	
Description:	The role the personnel play in the study as defined by the research team.
Required:	Yes

Lookup:	None
Comment:	The role the personnel play in the study as defined by the research team.
Database Table:	study_personnel
Database Column:	title_in_study
Database Column Type:	varchar(100)

Study_personnel : Role In Study	
Description:	The ImmPort display will show the personnel listed as 'PI' in the study.
Required:	Yes
Controlled Lookup:	Please refer to Appendix A - lk_personnel_role.
Comment:	Please use the drop down list.
Database Table:	study_personnel
Database Column:	role_in_study
Database Column Type:	varchar(40)

Study_personnel : Site Name	
Description:	Enter the site name if there is a need to further differentiate the affiliation of the study personnel form the Organization.
Required:	Yes
Lookup:	None
Comment:	Enter the site name if there is a need to further differentiate the affiliation of the study personnel from the Organization.
Database Table:	study_personnel

Database Column:	site_name
Database Column Type:	varchar(100)

6.6. Planned_visit

The compound template Planned_visit is required.

Planned_visit : User Defined ID	
Description:	The planned visit user defined ID is an identifier chosen by the data provider to refer to a planned visit. This ID may be referenced by other data records (e.g. biological samples). The user defined ID is not shared. Insert rows in the template to define additional planned visits linked to the study. Use the study_design_edit template to add additional records after a study is defined in ImmPort.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	planned_visit
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Planned_visit : Name	
Description:	the visit name should indicate the purpose of the visit (e.g. screening, assessment, inoculation, sample drawn). The visit name is not referenced by other data records.
Required:	Yes
Lookup:	None
Comment:	The visit name is an alternate identifier that is visible when the protocol is shared.
Database Table:	planned_visit

Database Column:	name
Database Column Type:	varchar(256)

Planned_visit : Order Number	
Description:	This is a positive whole number value.
Required:	Yes
Lookup:	None
Comment:	The order of the visit within the study design schedule.
Database Table:	planned_visit
Database Column:	order_number
Database Column Type:	integer

Planned_visit : Min Start Day	
Description:	This is a positive or negative numeric value.
Required:	Yes
Lookup:	None
Comment:	The minimum start day for a visit as defined in the study schedule.
Database Table:	planned_visit
Database Column:	min_start_day
Database Column Type:	float

Planned_visit : Max Start Day

Description:	This is a positive or negative numeric value. If no value is entered, the maximum start day will be set equal to the minimum start day.
Required:	No
Lookup:	None
Comment:	The maximum start day for a visit as defined in the study schedule.
Database Table:	planned_visit
Database Column:	max_start_day
Database Column Type:	float

Planned_visit : Start Rule	
Description:	Enter a start rule only if it is more interesting than "subject has arrived for a scheduled visit".
Required:	No
Lookup:	None
Comment:	Enter a start rule only if it is more interesting than "subject has arrived for a scheduled visit".
Database Table:	planned_visit
Database Column:	start_rule
Database Column Type:	varchar(256)

Planned_visit : End Rule	
Description:	Enter an end rule only if it is more interesting than "subject has arrived for a scheduled visit".
Required:	No
Lookup:	None

Comment:	Enter an end rule only if it is more interesting than "subject has arrived for a scheduled visit".
Database Table:	planned_visit
Database Column:	end_rule
Database Column Type:	varchar(256)

6.7. Inclusion_exclusion

The compound template Inclusion_exclusion is required.

Inclusion_exclusion : User Defined ID	
Description:	The inclusion or exclusion user defined ID is an identifier chosen by the data provider to refer to a criterion used to determine whether a subject may be enrolled in a study. Use the study_design_edit template to add additional records after a study is defined in ImmPort.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	inclusion_exclusion
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Inclusion_exclusion : Criterion	
Description:	One or more criterion must be described to decide whether a subject may be enrolled in a study.
Required:	Yes
Lookup:	None
Comment:	The criterion describes the parameter used to decide if a subject may be enrolled in a study.

Database Table:	inclusion_exclusion
Database Column:	criterion
Database Column Type:	varchar(750)

Inclusion_exclusion : Criterion Category	
Description:	The criterion category is selected form a preferred list of terms.
Required:	Yes
Controlled Lookup:	Please refer to Appendix A - lk_criterion_category.
Comment:	There are two values to choose from: inclusion or exclusion.
Database Table:	inclusion_exclusion
Database Column:	criterion_category
Database Column Type:	varchar(40)

6.8. Study_2_protocol

The compound template Study_2_protocol is required.

Study_2_protocol : Protocol ID	
Description:	The protocol ID for the study. Use the study_design_edit template to add additional records after a study is defined in ImmPort.
Required:	Yes
Lookup:	None
Comment:	The protocol ID for the study.
Database Table:	study_2_protocol
Database Column:	protocol_accession

Database Column Type:	varchar(15)

6.9. Study_file

The compound template Study_file is optional.

Study_file : File Name	
Description:	If there are additional files (e.g. as data dictionaries, CRFs, custom formatted lab tests or assessments) that should be linked to the study please indicate them in this block. Insert rows in the template to link additional files to the study. Use the study_design_edit template to add additional records after a study is defined in ImmPort. The file size name limit is 250 characters. For a given study, all file names for study_file must be unique.
Required:	Yes
Lookup:	None
Comment:	The name of the file, including file extension, that is to be linked to the study. The file size name limit is 250 characters. For a given study, all file names for study_file must be unique.
Database Table:	study_file
Database Column:	file_name
Database Column Type:	varchar(250)

Study_file : Description	
Description:	A brief description of the file.
Required:	Yes
Lookup:	None
Comment:	A brief description of the file.
Database Table:	study_file
Database Column:	description

Database Column Type:	varchar(4000)

Study_file : Study File Type	
Description:	Additional study data or study descriptions are current preferred terms.
Required:	Yes
Controlled Lookup:	Please refer to Appendix A - lk_study_file_type.
Comment:	Please choose from the drop down list.
Database Table:	study_file
Database Column:	study_file_type
Database Column Type:	varchar(50)

6.10. Study_link

The compound template Study_link is optional.

Study_link : Name	
Description:	The name of the website to which the link refers. Use the study_design_edit template to add additional records after a study is defined in ImmPort.
Required:	Yes
Lookup:	None
Comment:	The name of the website to which the link refers.
Database Table:	study_link
Database Column:	name
Database Column Type:	varchar(500)

Study_link : Value	
Description:	If this is a clinical trial, please include the clinicalTrial.gov URL.
Required:	Yes
Lookup:	None
Comment:	Define websites that are linked to the study. Insert rows in the template to define additional websites linked to the study.
Database Table:	study_link
Database Column:	value
Database Column Type:	varchar(2000)

6.11. Study_pubmed

The compound template Study_pubmed is optional.

Study_pubmed : Pubmed ID	
Description:	The Pubmed or PubMedCentral identifier of an article that includes data from this study. Use the study_design_edit template to add additional records after a study is defined in ImmPort.
Required:	Yes
Lookup:	None
Comment:	The Pubmed or PubMedCentral identifier of an article that includes data from this study.
Database Table:	study_pubmed
Database Column:	pubmed_id
Database Column Type:	varchar(16)

Study_pubmed : DOI

Description:	Digital Object Identifier is a persistent identifier or handle used to uniquely identify an object. ImmPort DOIs are generated by DataCite (https://www.datacite.org/)
Required:	No
Lookup:	None
Comment:	Digital Object Identifier is a persistent identifier or handle used to uniquely identify an object.
Database Table:	study_pubmed
Database Column:	doi
Database Column Type:	varchar(100)

Study_pubmed : Title	
Description:	The title of an article that includes data from this study.
Required:	No
Lookup:	None
Comment:	The title of an article that includes data from this study.
Database Table:	study_pubmed
Database Column:	title
Database Column Type:	varchar(4000)

Study_pubmed : Journal	
Description:	The journal name that publishes an article that includes data from this study.
Required:	No
Lookup:	None
Comment:	The journal name that publishes an article that includes data from this study.

Database Table:	study_pubmed
Database Column:	journal
Database Column Type:	varchar(250)

Study_pubmed : Year	
Description:	The article publication year.
Required:	No
Lookup:	None
Comment:	The article publication year.
Database Table:	study_pubmed
Database Column:	year
Database Column Type:	varchar(4)

Study_pubmed : Month	
Description:	The article publication month.
Required:	No
Lookup:	None
Comment:	The article publication month.
Database Table:	study_pubmed
Database Column:	month
Database Column Type:	varchar(12)

Study_pubmed : Issue	
Description:	The journal's issue number.
Required:	No
Lookup:	None
Comment:	The journal's issue number.
Database Table:	study_pubmed
Database Column:	issue
Database Column Type:	varchar(20)

Study_pubmed : Pages	
Description:	The journal's page number.
Required:	No
Lookup:	None
Comment:	The journal's page number.
Database Table:	study_pubmed
Database Column:	pages
Database Column Type:	varchar(20)

Study_pubmed : Authors	
Description:	The article's authors.
Required:	No
Lookup:	None
Comment:	The article's authors.

Database Table:	study_pubmed
Database Column:	authors
Database Column Type:	varchar(4000)

6.12. Contract_grant

The compound template Contract_grant is optional.

Contract_grant : External ID	
Description:	The ID assigned to this contract by the sponsoring organizaton. If it is a NIH Contract, please enter the project number assigned and available from NIH Reporter. Example: 1P01AI165072-01.
Required:	Yes
Lookup:	None
Comment:	The ID assigned to this contract by the sponsoring organizaton. If it is a NIH Contract, please enter the project number assigned and available from NIH Reporter. Example: 1P01AI165072-01.
Database Table:	contract_grant
Database Column:	external_id
Database Column Type:	varchar(200)

Contract_grant : Category	
Description:	Category choices are NIH or Other
Required:	No
Controlled Lookup:	Please refer to Appendix A - lk_contract_category.
Comment:	Category choices are NIH or Other
Database Table:	contract_grant

Database Column:	category
Database Column Type:	varchar(50)

Contract_grant : Name	
Description:	Name of the contract
Required:	No
Lookup:	None
Comment:	Name of the contract
Database Table:	contract_grant
Database Column:	name
Database Column Type:	varchar(1000)

Contract_grant : Link	
Description:	Add the URL for the link to the contract details. For example the link for a NIH contract 1K23HL125663-01, Metabolic derangements in ARDS is https://reporter.nih.gov/project-details/8804164
Required:	Yes
Lookup:	None
Comment:	Add the URL for the link to the contract details. For example the link for a NIH contract 1K23HL125663-01, Metabolic derangements in ARDS is https://reporter.nih.gov/project-details/8804164
Database Table:	contract_grant
Database Column:	link
Database Column Type:	varchar(2000)

7. **bioSamples.txt**

The biological sample template is a legacy template that defines and annotates the types of samples derived from study subjects and when during the study schedule the sample was derived. The function of this template is also captured in the experiment samples template. This template will continue to be supported for the foreseeable future to support backward compatibility.

bioSamples.txt : User Defined ID	
Description:	The biological sample user defined ID is an identifier chosen by the data provider to refer to a sample. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	biosample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

bioSamples.txt : Type	
Description:	The sample types are adopted from Uberon, Cell and CHEBI ontologies.
Required:	Yes
Controlled Lookup:	Please refer to Appendix A - lk_sample_type.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	type
Database Column Type:	varchar(50)

bioSamples.txt : Subtype	
Description:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Required:	No
Lookup:	None
Comment:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Database Table:	biosample
Database Column:	subtype
Database Column Type:	varchar(50)

bioSamples.txt : Name	
Description:	The biological sample name is not referenced by other data records.
Required:	No
Lookup:	None
Comment:	The biological sample name is an alternate identifier that is visible when the sample is shared.
Database Table:	biosample
Database Column:	name
Database Column Type:	varchar(200)

bioSamples.txt : Description	
Description:	The biological sample description is used to describe details of the sample not captured in other columns.
Required:	No

Lookup:	None
Comment:	The biological sample description is used to describe details of the sample not captured in other columns.
Database Table:	biosample
Database Column:	description
Database Column Type:	varchar(4000)

bioSamples.txt : Subject ID	
Description:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived. A single subject record is permitted.
Required:	Yes
Lookup:	None
Comment:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived.
Database Table:	biosample
Database Column:	subject_accession
Database Column Type:	varchar(15)

bioSamples.txt : Study ID	
Description:	A biological sample may be linked to a single study.
Required:	Yes
Lookup:	None
Comment:	Please enter either a study user defined ID or ImmPort accession.
Database Table:	biosample

Database Column:	study_accession
Database Column Type:	varchar(15)

bioSamples.txt : Planned Visit ID	
Description:	The link to a study's planned visit provides temporal context for a sample's derivation from a subject.
Required:	Yes
Lookup:	None
Comment:	Please enter either a study's planned visit user defined ID or ImmPort accession.
Database Table:	biosample
Database Column:	planned_visit_accession
Database Column Type:	varchar(15)

bioSamples.txt : Treatment ID(s)	
Description:	Please enter either a treatment user defined ID or ImmPort accession if the sample was manipulated in a manner significant to the assay prior to the assay being conducted. One or more identifiers can be entered per sample. Separate identifiers by semicolon (;).
Required:	No
Lookup:	None
Comment:	Please enter either a treatment user defined ID or ImmPort accession.
Database Table:	biosample_2_treatment
Database Column:	treatment_accession
Database Column Type:	varchar(15)

bioSamples.txt : Study Time Collected	
Description:	Study time collected describes the time value for when a sample was derived from a subject.
Required:	Yes
Lookup:	None
Comment:	Please enter a number.
Database Table:	biosample
Database Column:	study_time_collected
Database Column Type:	float

bioSamples.txt : Study Time Collected Unit	
Description:	The time units are standard terms recommended by the HIPC Standards group.
Required:	Yes
Controlled Lookup:	Please refer to Appendix A - lk_time_unit.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_collected_unit
Database Column Type:	varchar(25)

bioSamples.txt : Study Time T0 Event	
Description:	The time zero event refers to the study milestone upon which time is based.
Required:	Yes

Controlled Lookup:	Please refer to Appendix A - lk_t0_event.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_t0_event
Database Column Type:	varchar(50)

bioSamples.txt : Study Time T0 Event Specify	
Description:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Required:	No
Lookup:	None
Comment:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Database Table:	biosample
Database Column:	study_time_t0_event_specify
Database Column Type:	varchar(50)

8. **controlSamples.txt**

The control sample template defines and annotates the control samples included in MBAA assays. Control samples are not assumed to be of biologic origin. This template requires that the control sample be always new, while the experiment can be new or pre-defined. The control sample is the key to the templates and must be unique within the template.

8.1. Control Sample Meta Data Columns

The Control Sample Meta Data Columns include the columns for the combined entity Control Sample.

Control Sample Meta Data Column controlSamples.txt : Control Sample ID	
Description:	The control sample user defined ID is an identifier chosen by the data provider. This ID may be referenced by other data records (e.g. MBAA results). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	control_sample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Control Sample Meta Data Column controlSamples.txt : Source	
Description:	The manufacturer or lab where the control sample was obtained.
Conditional Required:	Yes for **New Control Sample**
Lookup:	None
Comment:	The manufacturer or lab where the control sample was obtained.
Database Table:	control_sample
Database Column:	source

Database Column Type:	varchar(100)

Control Sample Meta Data Column controlSamples.txt : Catalog ID	
Description:	The manufacturer or source lab's identifier.
Conditional Required:	Yes for **New Control Sample**
Lookup:	None
Comment:	The manufacturer or source lab's identifier.
Database Table:	control_sample
Database Column:	catalog_id
Database Column Type:	varchar(100)

Control Sample Meta Data Column controlSamples.txt : Dilution Factor	
Description:	The dilution factor indicates how much a sample was diluted before it was assayed.
Conditional Required:	Yes for **New Control Sample**
Lookup:	None
Comment:	Please enter a number.
Database Table:	control_sample
Database Column:	dilution_factor
Database Column Type:	varchar(100)

Control Sample Meta Data Column controlSamples.txt : Assay ID

Description:	The assay ID represents the plate or array ID where standard curves, control samples, and experiment samples were collected and assayed. This ID will be used to link standard curves, control samples, and experiment samples results.
Conditional Required:	Yes for **New Control Sample**
Lookup:	None
Comment:	The assay ID represents the plate or array ID where standard curves, control samples, and experiment samples were collected and assayed. This ID will be used to link standard curves, control samples, and experiment samples results.
Database Table:	control_sample
Database Column:	assay_id
Database Column Type:	varchar(100)

Control Sample Meta Data Column controlSamples.txt : Assay Group ID	
Description:	The assay group ID represents a collection of plates or arrays. This ID may be used to link collections of standard curves, control samples, and experiment samples results.
Required:	No
Lookup:	None
Comment:	The assay group ID represents a collection of plates or arrays. This ID may be used to link collections of standard curves, control samples, and experiment samples results.
Database Table:	control_sample
Database Column:	assay_group_id
Database Column Type:	varchar(100)

Control Sample Meta Data Column controlSamples.txt : ImmPort Template?

Description:	The format of the result file depends on the assay type. ImmPort supports results templates (MBAA_Results.txt) for some of the commonly used immunological assay methods. These template facilitate the sharing and re-use of results data in a standard format. If the result file is the ImmPort results template (strongly recommended by NIAID DAIT), choose 'Yes' from the drop down list and do not include a file name in the "Result File Name" column. If the result file is not an ImmPort results template, choose 'No' from the drop down list and include a file name in the "Result File Name" column.
Conditional Required:	Yes for **New Control Sample**
Controlled Lookup:	Please refer to Appendix A - lk_yes_no.
Comment:	The format of the result file depends on the assay type. ImmPort supports results templates (MBAA_Results.txt) for some of the commonly used immunological assay methods. These templates facilitate the sharing and re-use of results data in a standard format. If the result file is the ImmPort results template (strongly recommended by NIAID DAIT), choose 'Yes' from the drop down list and do not include a file name in the "Result File Name" column. If the result file is not an ImmPort results template, choose 'No' from the drop down list and include a file name in the "Result File Name" column.

Control Sample Meta Data Column controlSamples.txt : Result File Name	
Description:	This is expected to be the MBAA_Results.txt ImmPort template. The file size name limit is 240 characters.
Required:	No
Lookup:	None
Comment:	Enter the file name (including file extension) that contains assay results for the control sample. The file size name limit is 240 characters.

Control Sample Meta Data Column controlSamples.txt : Lot Number	
Description:	The lot number is helpful to understand possible batch specific differences in assay results.
Required:	No
Lookup:	None
Comment:	The lot number is often provided by a reagent source when the reagent is replenished over time.
Database Table:	control_sample

Database Column:	lot_number
Database Column Type:	varchar(100)

Control Sample Meta Data Column controlSamples.txt : Additional Result File Names	
Description:	HIPC recommends including bead level result files if they are available. Separate file names by a semi-colon (;). The file size name limit is 240 characters.
Required:	No
Lookup:	None
Comment:	HIPC recommends including bead level result files if they are available. The file size name limit is 240 characters.

8.2. Experiment Meta Data Columns

The Experiment Meta Data Columns include the columns for the combined entity Experiment.

Experiment Meta Data Column controlSamples.txt : Experiment ID	
Description:	The experiment identifier must be stored in ImmPort or in the experiments.txt template.
Required:	Yes
Lookup:	None
Comment:	Please enter either an experiment user defined ID or ImmPort accession.
Database Table:	experiment
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Experiment Meta Data Column controlSamples.txt : Study ID	
Description:	An experiment may be linked to a single study.

Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	Please enter either a study user defined ID or ImmPort accession.
Database Table:	experiment
Database Column:	study_accession
Database Column Type:	varchar(15)

Experiment Meta Data Column controlSamples.txt : Protocol ID(s)	
Description:	Please enter either a protocol user defined ID or ImmPort accession for a protocol that describes how the sample was derived and prepared. One or more identifiers can be entered per sample. Separate identifiers by semicolon (;).
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	Please enter either a protocol user defined ID or ImmPort accession.
Database Table:	experiment_2_protocol
Database Column:	protocol_accession
Database Column Type:	varchar(15)

Experiment Meta Data Column controlSamples.txt : Name	
Description:	The experiment name is not referenced by other data records.
Conditional Required:	Yes for **New Experiment**
Lookup:	None

Comment:	The experiment name is an alternate identifier that is visible when the sample is shared.
Database Table:	experiment
Database Column:	name
Database Column Type:	varchar(500)

Experiment Meta Data Column controlSamples.txt : Description	
Description:	The experiment description is used to describe details of the experiment not captured in other columns.
Required:	No
Lookup:	None
Comment:	The experiment description is used to describe details of the experiment not captured in other columns.
Database Table:	experiment
Database Column:	description
Database Column Type:	varchar(4000)

Experiment Meta Data Column controlSamples.txt : Measurement Technique	
Description:	The measurement technique describes the assay method.
Conditional Required:	Yes for **New Experiment**
Controlled Lookup:	Please refer to Appendix A - lk_exp_measurement_tech.
Comment:	Choose from a drop down list.
Database Table:	experiment

Database Column:	measurement_technique
Database Column Type:	varchar(50)

9. **CyTOF_Derived_data.txt**
The CYTOF derived data template captures and annotates the assay results for a sample by linking sample, experiment, and interpreted results together.

Table: Marker Intensities (Marker State) and Their Preferred Labels, and Gates Not Based on Cell Protein Markers and Preferred Labels

This table highlights the preferred marker expression state terms (marker state) to use in the cytometry derived data templates. The Alternative Labels note how indicated reported marker expression intensity states are mapped to preferred terms. For gates that are not based on cell protein markers, common cases have been identified and need to be idenfified by the preferred label. The following table provides information on the Marker States for marker expression intensity states, and information on Preferred Labels for gates not bassed on cell protein markers.

Marker State	Preferred Label	Alternative Labels
Marker Intensities (Marker State)		
Negative	-	negative, neg
Positive	+	positive, pos
Low	+-	low, lo, LO, (low), -low, dim, di
Intermediate	+~	intermediate, int, medium, med, -medium
High	++	high, hi, (high), -high, Bright, bright, bri, br
----------	----------	----------
Gates Not Based on Cell Protein Markers		
Preferred Label	Based On	Alternative Labels
lymphocyte	size (FSC vs SSC)	ly, lymp, lymph, lymphocyte, Lymph, Lymphs, Lymp, Lymphocytes
monocyte	size (FSC vs SSC)	mo, mono, monos, MNC, Monocyte, Mono
granulocyte	size (FSC vs SSC)	gran
intact	size (FSC vs SSC)	intact_cells, intact_cells_population

singlet	relative dimensions (SSC or FCS, A vs H, H vs W, A vs W)	sing, singlets, Singlet, Singlets, doublet_excluded, sing-F, intact_singlet
viable	dye	live, Annexin-, live/dead stain
proliferated	dye	CFSE-, TracerViolet-
infected	Infection marker	
MHC epitope specific	MHC:epitope staining	

The template has validation levels that define the level of validation required for this template. The validation for this template is either Standard or HIPC, where HIPC is a fuller validation with more required columns controlled/preferred vocabularies.

CyTOF_Derived_data.txt : Expsample ID	
Description:	The experiment sample identifier must be stored in ImmPort or in the experimentsamples.txt template.
Required:	Yes
Lookup:	None
Comment:	Please enter either an experiment sample user defined ID or ImmPort accession.
Database Table:	fcs_analyzed_result And expsample_2_file_info
Database Column:	expsample_accession
Database Column Type:	varchar(15)

CyTOF_Derived_data.txt : Population Name Reported	
Description:	The drop down list provides a list of cell population names. Please select a name if it matches your cell population name or enter a population name if there is not an appropriate one provided. The population name has a limit of 150 characters. This column can also have the format: "lineage_prefix ; population name", "population_name&modifiers", or "lineage_prefix ; population_name&modifiers". Also, if the Population Name Reported does not occur in the drop down, it will be tested against the lk_cell_population_pref_map to determine a preferred name.
Required:	Yes

Preferred Lookup:	Please refer to Appendix A - lk_cell_population with preferred column(s) population_prefix_preferred and population_name_preferred. Also, please refer to Appendix A - lk_cell_population_pref_map for Pref Mapping with preferred column(s) population_name_preferred.
Comment:	The population name is the type of cells whose count is reported. Please select a population name from the drop down list if it matches your cell population name or enter a name if there is not an appropriate one provided. This column can also have the format: "lineage_prefix ; population name", "population_name&modifiers", or "lineage_prefix ; population_name&modifiers". Also, if the Population Name Reported does not occur in the drop down, it will be tested against the lk_cell_population_pref_map to determine a preferred name.
Database Table:	fcs_analyzed_result
Database Column:	population_name_reported
Database Column Type:	varchar(150)

CyTOF_Derived_data.txt : Gating Definition Reported	
Description:	he gating definition is the set of markers and their expression profile that describes a cell population name. Please select a gating definition from the drop down list if it matches your gating definition or enter a gating definition if there is not an appropriate one provided. The marker names should conform to standard names as described in the LK_ANALYTE table. Note that a comma, forward slash or pipe may be used as marker delimiter. The expression values are '-', '+', '+-', '+~', '++', or ''. The gating definition has a limit of 150 characters.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_cell_population_definition with preferred column(s) population_defnition_preferred.
Comment:	The gating definition is the set of markers and their expression profile. Please select a gating definition from the drop down list or enter a gating definition. Please see the ImmPort Upload Templates for details on representing marker names, delimiters and expression values.
Database Table:	fcs_analyzed_result
Database Column:	population_defnition_reported
Database Column Type:	varchar(150)

CyTOF_Derived_data.txt : Parent Population Reported	
Description:	The drop down provides the base parent population. Please select a name if it matches your base parent population name or enter a name if there is not an appropriate one provided. This column can also have the format: "lineage_prefix ; population name", "population_name&modifiers", or "lineage_prefix ; population_name&modifiers". Also, if the Parent Population Reported does not occur in the drop down, it will be tested against the lk_cell_population_pref_map to determine a preferred name.
Required:	No
Preferred Lookup:	Please refer to Appendix A - lk_cell_population with preferred column(s) population_prefix_preferred and population_name_preferred. Also, please refer to Appendix A - lk_cell_population_pref_map for Pref Mapping with preferred column(s) parent_population_preferred.
Comment:	The base parent population name. Please select a population name from the drop down list if it matches your base parent population name or enter a name if there is not an appropriate one provided. This column can also have the format: "lineage_prefix ; population name", "population_name&modifiers", or "lineage_prefix ; population_name&modifiers" . Also, if the Parent Population eported does not occur in the drop down, it will be tested against the lk_cell_population_pref_map to determine a preferred name.
Database Table:	fcs_analyzed_result
Database Column:	parent_population_reported
Database Column Type:	varchar(150)

CyTOF_Derived_data.txt : Population Statistic (count, percentile, etc)	
Description:	The count of the cell type defined by the marker gating definition.
Required:	Yes
Lookup:	None
Comment:	A number is expected.
Database Table:	fcs_analyzed_result
Database Column:	population_statistic_reported
Database Column Type:	varchar(50)

CyTOF_Derived_data.txt : Population Stat Unit Reported	
Description:	The unit used to describe the cell count. Please select a unit from the drop down list if the definition matches your unit name or enter a unit if there is not an appropriate one provided.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_cell_pop_statistic_unit with preferred column(s) statistic_unit_preferred.
Comment:	The unit used to describe the cell count. Please select a unit from the list provided if the definition matches your unit name or enter a unit if there is not an appropriate one provided.
Database Table:	fcs_analyzed_result
Database Column:	population_stat_unit_reported
Database Column Type:	varchar(100)

CyTOF_Derived_data.txt : Workspace File	
Description:	An XML formatted export of the analysis program is expected (e.g. an xml format of a FlowJo .jo or .wsp file). The file size name limit is 240 characters.
Required:	Yes
Lookup:	None
Comment:	The name of the file that stores the interpreted CyTOF results from the analysis program. The file size name limit is 240 characters.

CyTOF_Derived_data.txt : Comments	
Description:	Comments captures additional descriptive information.
Required:	No
Lookup:	None
Comment:	Comments captures additional descriptive information.
Database Table:	fcs_analyzed_result

Database Column:	comments
Database Column Type:	varchar(500)

10. **ELISA_Results.txt**

The ELISA experiment sample template defines and annotates the assay results for a sample by linking sample, experiment, and results together. More than one analyte's results per assayed sample may be reported by copying the group of columns 'Analyte', 'Calculated Concentration Value', and 'Calculated Concentration Unit' needed to describe each assay result.

ELISA_Results.txt : Expsample ID	
Description:	The experiment sample identifier must be stored in ImmPort or in the experimentsamples.txt template.
Required:	Yes
Lookup:	None
Comment:	Please enter either an experiment sample user defined ID or ImmPort accession.
Database Table:	elisa_result And expsample_2_file_info
Database Column:	expsample_accession
Database Column Type:	varchar(15)

ELISA_Results.txt : Analyte Reported	
Description:	The analyte describes what is being measured in an assay. The list of values displays common immunology terms on the left and their preferred term on the right, separated by a semi-colon. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_analyte with preferred column(s) immunology_symbol and short_label and analyte_preferred.
Comment:	The analyte is the target (e.g protein, DNA, RNA) that is being assayed by the reagent. The list of values displays common immunology terms on the left and their preferred term on the right, separated by a semi-colon. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Database Table:	elisa_result
Database Column:	analyte_reported

Database Column Type:	varchar(100)

ELISA_Results.txt : Value Reported	
Description:	The analyte's concentration value.
Required:	Yes
Lookup:	None
Comment:	The analyte's concentration value.
Database Table:	elisa_result
Database Column:	value_reported
Database Column Type:	varchar(50)

ELISA_Results.txt : Unit Reported	
Description:	The analyte's concentration unit.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_concentration_unit with preferred column(s) concentration_unit_preferred.
Comment:	The analyte's concentration unit.
Database Table:	elisa_result
Database Column:	unit_reported
Database Column Type:	varchar(200)

ELISA_Results.txt : Comments	
Description:	Unstructured text to further describe the result.

Required:	No
Lookup:	None
Comment:	Unstructured text to further describe the result.
Database Table:	elisa_result
Database Column:	comments
Database Column Type:	varchar(500)

11. **ELISPOT_Results.txt**

The ELISPOT experiment sample template defines and annotates the assay results for a sample by linking sample, experiment, and results together. More than one analyte's results per assayed sample may be reported by copying the group of columns 'Analyte', 'Number Of Spots Per Well', and 'Cell number per well Value', 'Cell number per well Unit' needed to describe each assay result.

ELISPOT_Results.txt : Expsample ID	
Description:	The experiment sample identifier must be stored in ImmPort or in the experimentsamples.txt template.
Required:	Yes
Lookup:	None
Comment:	Please enter either an experiment sample user defined ID or ImmPort accession.
Database Table:	elispot_result And expsample_2_file_info
Database Column:	expsample_accession
Database Column Type:	varchar(15)

ELISPOT_Results.txt : Analyte Reported	
Description:	The analyte describes what is being measured in an assay. The list of values displays common immunology terms on the left and their preferred term on the right, separated by a semi-colon. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_analyte with preferred column(s) immunology_symbol and short_label and analyte_preferred.
Comment:	The analyte is the target (e.g protein, DNA, RNA) that is being assayed by the reagent. The list of values displays common immunology terms on the left and their preferred term on the right, separated by a semi-colon. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Database Table:	elispot_result
Database Column:	analyte_reported

Database Column Type:	varchar(100)

ELISPOT_Results.txt : Spot Number Reported	
Description:	The number of spots generated by the reporting assay reagent.
Required:	Yes
Lookup:	None
Comment:	A number is expected.
Database Table:	elispot_result
Database Column:	spot_number_reported
Database Column Type:	varchar(50)

ELISPOT_Results.txt : Cell Number Reported	
Description:	The number of live cells assayed per well.
Required:	Yes
Lookup:	None
Comment:	A number is expected.
Database Table:	elispot_result
Database Column:	cell_number_reported
Database Column Type:	varchar(50)

ELISPOT_Results.txt : Comments	
Description:	Unstructured text to further describe the result
Required:	No

Lookup:	None
Comment:	Unstructured text to further describe the result
Database Table:	elispot_result
Database Column:	comments
Database Column Type:	varchar(500)

12. **experiments.txt**

The experiments template is a legacy template that defines and annotates the mechanistic assays performed on samples. The function of this template is also captured in the experiment samples template. This template will continue to be supported for the foreseeable future to support backward compatibility.

experiments.txt : User Defined ID	
Description:	The experiment user defined ID is an identifier chosen by the data provider to refer to an experiment. This ID may be referenced by other data records (e.g. experiment sample, control sample, standard curve). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	experiment
Database Column:	user_defined_id
Database Column Type:	varchar(100)

experiments.txt : Name	
Description:	The experiment name is a display name that is available when the data is shared, but it is not referenced by other data.
Required:	Yes
Lookup:	None
Comment:	The experiment name is an alternate identifier that is visible when the sample is shared.
Database Table:	experiment
Database Column:	name
Database Column Type:	varchar(500)

experiments.txt : Description	
Description:	The experiment description is used to describe details of the experiment not captured in other columns.
Required:	No
Lookup:	None
Comment:	The experiment description is used to describe details of the experiment not captured in other columns.
Database Table:	experiment
Database Column:	description
Database Column Type:	varchar(4000)

experiments.txt : Measurement Technique	
Description:	The measurement technique describes the assay method.
Required:	Yes
Controlled Lookup:	Please refer to Appendix A - lk_exp_measurement_tech.
Comment:	Choose from a drop down list.
Database Table:	experiment
Database Column:	measurement_technique
Database Column Type:	varchar(50)

experiments.txt : Study ID	
Description:	An experiment may be linked to a single study.
Required:	Yes
Lookup:	None

Comment:	Please enter either a study user defined ID or ImmPort accession for the study in which the experiment occurs.
Database Table:	experiment
Database Column:	study_accession
Database Column Type:	varchar(15)

experiments.txt : Protocol ID(s)	
Description:	Please enter either a protocol user defined ID or ImmPort accession. One or more identifiers can be entered per subject. Separate identifiers by semicolon (;).
Required:	Yes
Lookup:	None
Comment:	Please enter either a protocol user defined ID or ImmPort accession.
Database Table:	experiment_2_protocol
Database Column:	protocol_accession
Database Column Type:	varchar(15)

13. **experimentSamples.CYTOF.txt**

The CYTOF experiment sample template defines and annotates the assay results for a sample by linking sample, experiment, and results together. The experiment samples template allows you to describe to ImmPort new experiments and biological samples or link experiments and biological samples stored in ImmPort with assay results. There is considerable flexibility in linking ImmPort content with new content in the templates and there are some general guidelines to remember. All of the experiment sample IDs in the template must always be unique in the template and must not already be stored in ImmPort. The biological sample and the experiment in the template may be new or they both may be new. If the biological sample or the experiment are new, then you must complete the required columns to describe them. The column header names in the templates indicate to what is being described and the '.xls' spreadsheet versions use color codes to indicate what is being described.

13.1. ID Meta Data Column

The ID Meta Data Columns include the ID columns that are referenced by more than one entity in the experiment sample template (for example, experiments and biological samples reference study IDs). The value entered the study ID is linked to experiment and biological sample. The experiment sample ID is the primary ID and can be defined only once and not re-used. The biological sample ID and experiment ID can be pre-defined or defined once and re-used within the template.

ID Meta Data Column experimentSamples.CYTOF.txt : Study ID	
Description:	An experiment and biological sample may be linked to a single study.
Conditional Required:	Yes for **New Experiment And Biosample**
Lookup:	None
Comment:	Please enter either a study user defined ID or ImmPort accession. This column is only required when both the experiment and biological sample are new.
Database Table:	biosample And experiment
Database Column:	study_accession
Database Column Type:	varchar(15)

13.2. Expsample Meta Data Columns

The Expsample Meta Data Columns include the columns for the combined entity Expsample.

Expsample Meta Data Column experimentSamples.CYTOF.txt : Expsample ID

Description:	The experiment sample user defined ID is an identifier chosen by the data provider to refer to this sample. This ID may be referenced by other data records (e.g. assay results). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	expsample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Expsample Meta Data Column experimentSamples.CYTOF.txt : Reagent ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The reagent identifier(s) must be stored in ImmPort or in the reagents.txt template.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Please enter either an assay reagent user defined ID or ImmPort accession.
Database Table:	expsample_2_reagent
Database Column:	reagent_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.CYTOF.txt : Treatment ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The treatment identifier(s) must be stored in ImmPort or in the treatments.txt template.
Conditional Required:	Yes for **New Expsample**

Lookup:	None
Comment:	Please enter either a treatment user defined ID or ImmPort accession.
Database Table:	expsample_2_treatment
Database Column:	treatment_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.CYTOF.txt : Expsample Name	
Description:	The experiment sample name is a display name that is available when the data is shared, but it is not referenced by other data records.
Required:	No
Lookup:	None
Comment:	The experiment sample name is an alternate identifier that is visible when the experiment sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Expsample Meta Data Column experimentSamples.CYTOF.txt : Expsample Description	
Description:	Describe important characteristics of the sample being assayed.
Required:	No
Lookup:	None
Comment:	Describe important characteristics of the sample being assayed.
Database Table:	expsample
Database Column:	description

Database Column Type:	varchar(4000)

Expsample Meta Data Column experimentSamples.CYTOF.txt : Additional Result File Names	
Description:	Separate file names by a semi-colon (;). The file size name limit is 240 characters.
Required:	No
Lookup:	None
Comment:	Please enter additional result file(s) to link to the experiment sample. The file size name limit is 240 characters.

Expsample Meta Data Column experimentSamples.CYTOF.txt : Result File Name	
Description:	The primary output for CYTOF assays is a file in .fcs format. The file size name limit is 240 characters.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	The primary output for CYTOF assays is a file in .fcs format. The file size name limit is 240 characters.

13.3. Biosample Meta Data Columns

The Biosample Meta Data Columns include the columns for the combined entity Biosample.

Biosample Meta Data Column experimentSamples.CYTOF.txt : Biosample ID	
Description:	The biological sample user defined ID is an identifier chosen by the data provider to refer to a sample. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded. Please enter either a biological sample user defined ID or ImmPort accession. A single biological sample may be linked to an experiment sample.

Database Table:	biosample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Biosample Meta Data Column experimentSamples.CYTOF.txt : Subject ID	
Description:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived. A single subject record is permitted.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived.
Database Table:	biosample
Database Column:	subject_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.CYTOF.txt : Planned Visit ID	
Description:	The link to a study's planned visit provides temporal context for a sample's derivation from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a study's planned visit user defined ID or ImmPort accession.
Database Table:	biosample
Database Column:	planned_visit_accession

Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.CYTOF.txt : Type	
Description:	The sample types are adopted from Uberon, Cell and CHEBI ontologies.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_sample_type.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	type
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.CYTOF.txt : Subtype	
Description:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Required:	No
Lookup:	None
Comment:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Database Table:	biosample
Database Column:	subtype
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.CYTOF.txt : Biosample Name	
Description:	The biological sample name is a display name that is available when the data is shared, but it is not referenced by other data.
Required:	No
Lookup:	None
Comment:	The biological sample name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Biosample Meta Data Column experimentSamples.CYTOF.txt : Biosample Description	
Description:	The biological sample description is used to describe details of the sample not captured in other columns.
Required:	No
Lookup:	None
Comment:	The biological sample description is used to describe details of the sample not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Biosample Meta Data Column experimentSamples.CYTOF.txt : Study Time Collected	
Description:	Study time collected describes the time value for when a sample was derived from a subject.
Conditional Required:	Yes for **New Biosample**

Lookup:	None
Comment:	Please enter a number.
Database Table:	biosample
Database Column:	study_time_collected
Database Column Type:	float

Biosample Meta Data Column experimentSamples.CYTOF.txt : Study Time Collected Unit	
Description:	The time units are standard terms recommended by the HIPC Standards group.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_time_unit.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_collected_unit
Database Column Type:	varchar(25)

Biosample Meta Data Column experimentSamples.CYTOF.txt : Study Time T0 Event	
Description:	The time zero event refers to the study milestone upon which time is based.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_t0_event.
Comment:	Please choose from the drop down list.
Database Table:	biosample

Database Column:	study_time_t0_event
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.CYTOF.txt : Study Time T0 Event Specify	
Description:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Required:	No
Lookup:	None
Comment:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Database Table:	biosample
Database Column:	study_time_t0_event_specify
Database Column Type:	varchar(50)

13.4. Experiment Meta Data Columns

The Experiment Meta Data Columns include the columns for the combined entity Experiment.

Experiment Meta Data Column experimentSamples.CYTOF.txt : Experiment ID	
Description:	The experiment identifier must be stored in ImmPort or in the experiments.txt template. The experiment serves as the parent entity to bind assay results of a similar type together.
Required:	Yes
Lookup:	None
Comment:	Please enter either a experiment user defined ID or ImmPort accession.
Database Table:	experiment
Database Column:	user_defined_id

Database Column Type:	varchar(100)

Experiment Meta Data Column experimentSamples.CYTOF.txt : Protocol ID(s)	
Description:	Please enter either a protocol user defined ID or ImmPort accession for a protocol that describes how the sample was derived and prepared. One or more identifiers can be entered per sample. Separate identifiers by semicolon (;).
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	Please enter either a protocol user defined ID or ImmPort accession. This column is required when either the experiment or biological sample are new.
Database Table:	experiment_2_protocol
Database Column:	protocol_accession
Database Column Type:	varchar(15)

Experiment Meta Data Column experimentSamples.CYTOF.txt : Experiment Name	
Description:	The experiment name is a display name that is available when the data is shared, but it is not referenced by other data.
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	The experiment name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(500)

Experiment Meta Data Column experimentSamples.CYTOF.txt : Experiment Description	
Description:	The experiment description is used to describe details of the experiment not captured in other columns.
Required:	No
Lookup:	None
Comment:	The experiment description is used to describe details of the experiment not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Experiment Meta Data Column experimentSamples.CYTOF.txt : Measurement Technique	
Description:	The measurement technique describes the assay method.
Conditional Required:	Yes for **New Experiment**
Controlled Lookup:	Please refer to Appendix A - lk_exp_measurement_tech.
Comment:	Choose from a drop down list.
Database Table:	experiment
Database Column:	measurement_technique
Database Column Type:	varchar(50)

14. **experimentSamples.ELISA.txt**

The ELISA experiment sample template defines and annotates the assay results for a sample by linking sample, experiment, and results together. More than one analyte's results per assayed sample may be reported by copying the group of columns 'Analyte', 'Calculated Concentration Value', and 'Calculated Concentration Unit' needed to describe each assay result. The experiment samples template allows you to describe to ImmPort new experiments and biological samples or link experiments and biological samples stored in ImmPort with assay results. There is considerable flexibility in linking ImmPort content with new content in the templates and there are some general guidelines to remember. All of the experiment sample IDs in the template must always be unique in the template and must not already be stored in ImmPort. The biological sample and the experiment in the template may be new or they both may be new. If the biological sample or the experiment is new, then you must complete the required columns to describe them. When defining a new experiment or biological sample, it is only necessary to complete the required descriptive columns once per experiment or biological sample. The column header names in the templates indicate to what is being described and the '.xls' spreadsheet versions use color codes to indicate what is being described.

14.1. ID Meta Data Column

The ID Meta Data Columns include the ID columns that are referenced by more than one entity in the experiment sample template (for example, experiments and biological samples reference study IDs). The value entered the study ID is linked to experiment and biological sample. The experiment sample ID is the primary ID and can be pre-defined or defined only once and not reused. The biological sample ID and experiment ID can be pre-defined or defined once and re-used within the template.

ID Meta Data Column experimentSamples.ELISA.txt : Study ID	
Description:	An experiment and biological sample may be linked to a single study.
Conditional Required:	Yes for **New Experiment And Biosample**
Lookup:	None
Comment:	Please enter either a study user defined ID or ImmPort accession. This column is only required when both the experiment and biological sample are new.
Database Table:	biosample And experiment
Database Column:	study_accession
Database Column Type:	varchar(15)

14.2. Expsample Meta Data Columns

The Expsample Meta Data Columns include the columns for the combined entity Expsample.

Expsample Meta Data Column experimentSamples.ELISA.txt : Expsample ID	
Description:	The experiment sample user defined ID is an identifier chosen by the data provider to refer to this sample. This ID may be referenced by other data records (e.g. assay results). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	expsample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Expsample Meta Data Column experimentSamples.ELISA.txt : Expsample Name	
Description:	The experiment sample name is a display name that is available when the data is shared, but it is not referenced by other data.
Required:	No
Lookup:	None
Comment:	The experiment sample name is an alternate identifier that is visible when the experiment sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Expsample Meta Data Column experimentSamples.ELISA.txt : Expsample Description	
Description:	Describe important characteristics of the sample being assayed.

Required:	No
Lookup:	None
Comment:	Describe important characteristics of the sample being assayed.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Expsample Meta Data Column experimentSamples.ELISA.txt : Reagent ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The reagent identifier(s) must be stored in ImmPort or in the reagents.txt template.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Please enter either an assay reagent user defined ID or ImmPort accession.
Database Table:	expsample_2_reagent
Database Column:	reagent_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.ELISA.txt : Treatment ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The treatment identifier(s) must be stored in ImmPort or in the treatments.txt template.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Please enter either a treatment user defined ID or ImmPort accession.

Database Table:	expsample_2_treatment
Database Column:	treatment_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.ELISA.txt : Additional Result File Names	
Description:	Separate file names by a semi-colon (;). The file size name limit is 240 characters.
Required:	No
Lookup:	None
Comment:	Please enter additional result file(s) to link to the experiment sample. The file size name limit is 240 characters.

14.3. Biosample Meta Data Columns

The Biosample Meta Data Columns include the columns for the combined entity Biosample.

Biosample Meta Data Column experimentSamples.ELISA.txt : Biosample ID	
Description:	The biological sample user defined ID is an identifier chosen by the data provider to refer to a sample. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded. Please enter either a biological sample user defined ID or ImmPort accession. A single biological sample may be linked to an experiment sample.
Database Table:	biosample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Biosample Meta Data Column experimentSamples.ELISA.txt : Type	
Description:	The sample types are adopted from Uberon, Cell and CHEBI ontologies.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_sample_type.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	type
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.ELISA.txt : Subtype	
Description:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Required:	No
Lookup:	None
Comment:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Database Table:	biosample
Database Column:	subtype
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.ELISA.txt : Biosample Name	
Description:	The biological sample name is a display name that is available when the data is shared, but it is not referenced by other data.

Required:	No
Lookup:	None
Comment:	The biological sample name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Biosample Meta Data Column experimentSamples.ELISA.txt : Biosample Description	
Description:	The biological sample description is used to describe details of the sample not captured in other columns.
Required:	No
Lookup:	None
Comment:	The biological sample description is used to describe details of the sample not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Biosample Meta Data Column experimentSamples.ELISA.txt : Subject ID	
Description:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived. A single subject record is permitted.
Conditional Required:	Yes for **New Biosample**
Lookup:	None

Comment:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived.
Database Table:	biosample
Database Column:	subject_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.ELISA.txt : Planned Visit ID	
Description:	The link to a study's planned visit provides temporal context for a sample's derivation from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a study's planned visit user defined ID or ImmPort accession.
Database Table:	biosample
Database Column:	planned_visit_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.ELISA.txt : Study Time Collected	
Description:	Study time collected describes the time value for when a sample was derived from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter a number.
Database Table:	biosample

Database Column:	study_time_collected
Database Column Type:	float

Biosample Meta Data Column experimentSamples.ELISA.txt : Study Time Collected Unit	
Description:	The time units are standard terms recommended by the HIPC Standards group.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_time_unit.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_collected_unit
Database Column Type:	varchar(25)

Biosample Meta Data Column experimentSamples.ELISA.txt : Study Time T0 Event	
Description:	The time zero event refers to the study milestone upon which time is based.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_t0_event.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_t0_event
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.ELISA.txt : Study Time T0 Event Specify	
Description:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Required:	No
Lookup:	None
Comment:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Database Table:	biosample
Database Column:	study_time_t0_event_specify
Database Column Type:	varchar(50)

14.4. Experiment Meta Data Columns

The Experiment Meta Data Columns include the columns for the combined entity Experiment.

Experiment Meta Data Column experimentSamples.ELISA.txt : Experiment ID	
Description:	The experiment identifier must be stored in ImmPort or in the experiments.txt template. The experiment serves as the parent entity to bind assay results of a similar type together.
Required:	Yes
Lookup:	None
Comment:	Please enter either a experiment user defined ID or ImmPort accession.
Database Table:	experiment
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Experiment Meta Data Column experimentSamples.ELISA.txt : Protocol ID(s)

Description:	Please enter either a protocol user defined ID or ImmPort accession for a protocol that describes how the sample was derived and prepared. One or more identifiers can be entered per sample. Separate identifiers by semicolon (;).
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	Please enter either a protocol user defined ID or ImmPort accession. This column is required when either the experiment or biological sample are new.
Database Table:	experiment_2_protocol
Database Column:	protocol_accession
Database Column Type:	varchar(15)

Experiment Meta Data Column experimentSamples.ELISA.txt : Experiment Name	
Description:	The experiment name is a display name that is available when the data is shared, but it is not referenced by other data.
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	The experiment name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(500)

Experiment Meta Data Column experimentSamples.ELISA.txt : Experiment Description	
Description:	The experiment description is used to describe details of the experiment not captured in other columns.
Required:	No

Lookup:	None
Comment:	The experiment description is used to describe details of the experiment not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Experiment Meta Data Column experimentSamples.ELISA.txt : Measurement Technique	
Description:	The measurement technique describes the assay method.
Conditional Required:	Yes for **New Experiment**
Controlled Lookup:	Please refer to Appendix A - lk_exp_measurement_tech.
Comment:	Choose from a drop down list.
Database Table:	experiment
Database Column:	measurement_technique
Database Column Type:	varchar(50)

14.5. Separator Column

This column must always appear in the template and must immediately follow after the last meta data column and before the (repeating) result column groups.

Separator Column experimentSamples.ELISA.txt : Result Separator Column	
Description:	This pseudo column separates meta data from results.
Required:	No
Lookup:	None

Comment:	This pseudo column separates the results (lab tests) from the lab test panel meta data. It must always appear and be the column that appears immediately after the last meta-data column and before any result columns.

14.6. Result Columns

Each result group (that is, result) consists of a group of the following result columns, where the **first column** of the group must always be '**Analyte Reported**'.

Result Column experimentSamples.ELISA.txt : Analyte Reported	
Description:	The analyte describes what is being measured in an assay. The list of values displays common immunology gene symbol and gene symbol terms on the left and their preferred term on the right, each component separated by a semi-colon. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_analyte with preferred column(s) immunology_symbol and short_label and analyte_preferred.
Comment:	This COLUMN must appear as the FIRST COLUMN for a repeating result column group. The list of values displays common immunology gene symbol and the gene symbol terms on the left and their preferred term on the right, each component separated by a semi-colon. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Database Table:	elisa_result
Database Column:	analyte_reported
Database Column Type:	varchar(100)

Result Column experimentSamples.ELISA.txt : Value Reported	
Description:	The analyte's concentration value.
Required:	Yes
Lookup:	None
Comment:	The analyte's concentration value.
Database Table:	elisa_result

Database Column:	value_reported
Database Column Type:	varchar(50)

Result Column experimentSamples.ELISA.txt : Unit Reported	
Description:	The analyte's concentration unit.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_concentration_unit with preferred column(s) concentration_unit_preferred.
Comment:	The analyte's concentration unit.
Database Table:	elisa_result
Database Column:	unit_reported
Database Column Type:	varchar(200)

Result Column experimentSamples.ELISA.txt : Comments	
Description:	Comments captures additional descriptive information that is added to the result.
Required:	No
Lookup:	None
Comment:	Comments captures additional descriptive information that is added to the result.
Database Table:	elisa_result
Database Column:	comments
Database Column Type:	varchar(500)

15. **experimentSamples.ELISPOT.txt**

The ELISPOT experiment sample template defines and annotates the assay results for a sample by linking sample, experiment, and results together. More than one analyte's results per assayed sample may be reported by copying the group of columns 'Analyte', 'Number Of Spots Per Well', and 'Cell number per well Value', 'Cell number per well Unit' needed to describe each assay result. The experiment samples template allows you to describe to ImmPort new experiments and biological samples or link experiments and biological samples stored in ImmPort with assay results. There is considerable flexibility in linking ImmPort content with new content in the templates and there are some general guidelines to remember. All of the experiment sample IDs in the template must always be unique in the template and must not already be stored in ImmPort. The biological sample and the experiment in the template may be new or they both may be new. If the biological sample or the experiment is new, then you must complete the required columns to describe them. When defining a new experiment or biological sample, it is only necessary to complete the required descriptive columns once per experiment or biological sample. The column header names in the templates indicate to what is being described and the '.xls' spreadsheet versions use color codes to indicate what is being described.

15.1. ID Meta Data Column

The ID Meta Data Columns include the ID columns that are referenced by more than one entity in the experiment sample template (for example, experiments and biological samples reference study IDs). The value entered the study ID is linked to experiment and biological sample. The experiment sample ID is the primary ID and can be pre-defined or defined only once and not reused. The biological sample ID and experiment ID can be pre-defined or defined once and re-used within the template.

ID Meta Data Column experimentSamples.ELISPOT.txt : Study ID	
Description:	An experiment and biological sample may be linked to a single study.
Conditional Required:	Yes for **New Experiment And Biosample**
Lookup:	None
Comment:	Please enter either a study user defined ID or ImmPort accession. This column is only required when both the experiment and biological sample are new.
Database Table:	biosample And experiment
Database Column:	study_accession
Database Column Type:	varchar(15)

15.2. Expsample Meta Data Columns

The Expsample Meta Data Columns include the columns for the combined entity Expsample.

Expsample Meta Data Column experimentSamples.ELISPOT.txt : Expsample ID	
Description:	The experiment sample user defined ID is an identifier chosen by the data provider to refer to this sample. This ID may be referenced by other data records (e.g. assay results). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	expsample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Expsample Meta Data Column experimentSamples.ELISPOT.txt : Expsample Name	
Description:	The experiment sample name is a display name that is available when the data is shared, but it is not referenced by other data.
Required:	No
Lookup:	None
Comment:	The experiment sample name is an alternate identifier that is visible when the experiment sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Expsample Meta Data Column experimentSamples.ELISPOT.txt : Expsample Description	
Description:	Describe important characteristics of the sample being assayed.

Required:	No
Lookup:	None
Comment:	Describe important characteristics of the sample being assayed.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Expsample Meta Data Column experimentSamples.ELISPOT.txt : Reagent ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The reagent identifier(s) must be stored in ImmPort or in the reagents.txt template.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Please enter either an assay reagent user defined ID or ImmPort accession.
Database Table:	expsample_2_reagent
Database Column:	reagent_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.ELISPOT.txt : Treatment ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The treatment identifier(s) must be stored in ImmPort or in the treatments.txt template.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Please enter either a treatment user defined ID or ImmPort accession.

Database Table:	expsample_2_treatment
Database Column:	treatment_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.ELISPOT.txt : Additional Result File Names	
Description:	Separate file names by a semi-colon (;). The file size name limit is 240 characters.
Required:	No
Lookup:	None
Comment:	Please enter additional result file(s) to link to the experiment sample. The file size name limit is 240 characters.

15.3. Biosample Meta Data Columns

The Biosample Meta Data Columns include the columns for the combined entity Biosample.

Biosample Meta Data Column experimentSamples.ELISPOT.txt : Biosample ID	
Description:	The biological sample user defined ID is an identifier chosen by the data provider to refer to a sample. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded. Please enter either a biological sample user defined ID or ImmPort accession. A single biological sample may be linked to an experiment sample.
Database Table:	biosample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Biosample Meta Data Column experimentSamples.ELISPOT.txt : Type	
Description:	The sample types are adopted from Uberon, Cell and CHEBI ontologies.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_sample_type.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	type
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.ELISPOT.txt : Subtype	
Description:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Required:	No
Lookup:	None
Comment:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Database Table:	biosample
Database Column:	subtype
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.ELISPOT.txt : Biosample Name	
Description:	The biological sample name is a display name that is available when the data is shared, but it is not referenced by other data.

Required:	No
Lookup:	None
Comment:	The biological sample name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Biosample Meta Data Column experimentSamples.ELISPOT.txt : Biosample Description	
Description:	The biological sample description is used to describe details of the sample not captured in other columns.
Required:	No
Lookup:	None
Comment:	The biological sample description is used to describe details of the sample not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Biosample Meta Data Column experimentSamples.ELISPOT.txt : Subject ID	
Description:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived. A single subject record is permitted.
Conditional Required:	Yes for **New Biosample**
Lookup:	None

Comment:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived.
Database Table:	biosample
Database Column:	subject_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.ELISPOT.txt : Planned Visit ID	
Description:	The link to a study's planned visit provides temporal context for a sample's derivation from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a study's planned visit user defined ID or ImmPort accession.
Database Table:	biosample
Database Column:	planned_visit_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.ELISPOT.txt : Study Time Collected	
Description:	Study time collected describes the time value for when a sample was derived from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter a number.
Database Table:	biosample

Database Column:	study_time_collected
Database Column Type:	float

Biosample Meta Data Column experimentSamples.ELISPOT.txt : Study Time Collected Unit	
Description:	The time units are standard terms recommended by the HIPC Standards group.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_time_unit.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_collected_unit
Database Column Type:	varchar(25)

Biosample Meta Data Column experimentSamples.ELISPOT.txt : Study Time T0 Event	
Description:	The time zero event refers to the study milestone upon which time is based.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_t0_event.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_t0_event
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.ELISPOT.txt : Study Time T0 Event Specify	
Description:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Required:	No
Lookup:	None
Comment:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Database Table:	biosample
Database Column:	study_time_t0_event_specify
Database Column Type:	varchar(50)

15.4. Experiment Meta Data Columns

The Experiment Meta Data Columns include the columns for the combined entity Experiment.

Experiment Meta Data Column experimentSamples.ELISPOT.txt : Experiment ID	
Description:	The experiment identifier must be stored in ImmPort or in the experiments.txt template. The experiment serves as the parent entity to bind assay results of a similar type together.
Required:	Yes
Lookup:	None
Comment:	Please enter either a experiment user defined ID or ImmPort accession.
Database Table:	experiment
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Experiment Meta Data Column experimentSamples.ELISPOT.txt : Protocol ID(s)

Description:	Please enter either a protocol user defined ID or ImmPort accession for a protocol that describes how the sample was derived and prepared. One or more identifiers can be entered per sample. Separate identifiers by semicolon (;).
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	Please enter either a protocol user defined ID or ImmPort accession. This column is required when either the experiment or biological sample are new.
Database Table:	experiment_2_protocol
Database Column:	protocol_accession
Database Column Type:	varchar(15)

Experiment Meta Data Column experimentSamples.ELISPOT.txt : Experiment Name	
Description:	The experiment name is a display name that is available when the data is shared, but it is not referenced by other data.
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	The experiment name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(500)

Experiment Meta Data Column experimentSamples.ELISPOT.txt : Experiment Description	
Description:	The experiment description is used to describe details of the experiment not captured in other columns.
Required:	No

Lookup:	None
Comment:	The experiment description is used to describe details of the experiment not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Experiment Meta Data Column experimentSamples.ELISPOT.txt : Measurement Technique	
Description:	The measurement technique describes the assay method.
Conditional Required:	Yes for **New Experiment**
Controlled Lookup:	Please refer to Appendix A - lk_exp_measurement_tech.
Comment:	Choose from a drop down list.
Database Table:	experiment
Database Column:	measurement_technique
Database Column Type:	varchar(50)

15.5. Separator Column

This column must always appear in the template and must immediately follow after the last meta data column and before the (repeating) result column groups.

Separator Column experimentSamples.ELISPOT.txt : Result Separator Column	
Description:	This pseudo column separates meta data from results.
Required:	No
Lookup:	None

Comment:	This pseudo column separates the results (lab tests) from the lab test panel meta data. It must always appear and be the column that appears immediately after the last meta-data column and before any result columns.

15.6. Result Columns

Each result group (that is, result) consists of a group of the following result columns, where the **first column** of the group must always be '**Analyte Reported**'.

Result Column experimentSamples.ELISPOT.txt : Analyte Reported	
Description:	The molecule or entity being measured. The list of values displays common immunology gene symbol and gene symbol terms on the left and their preferred term on the right, each component separated by a semi-colon. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_analyte with preferred column(s) immunology_symbol and short_label and analyte_preferred.
Comment:	The molecule or entity being measured. This COLUMN must appear as the FIRST COLUMN for a repeating result column group. The list of values displays common immunology gene symbol and the gene symbol terms on the left and their preferred term on the right, each component separated by a semi-colon. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Database Table:	elispot_result
Database Column:	analyte_reported
Database Column Type:	varchar(100)

Result Column experimentSamples.ELISPOT.txt : Spot Number Reported	
Description:	The number of spots generated by the reporting assay reagent.
Required:	Yes
Lookup:	None
Comment:	A number is expected.

Database Table:	elispot_result
Database Column:	spot_number_reported
Database Column Type:	varchar(50)

Result Column experimentSamples.ELISPOT.txt : Cell Number Reported	
Description:	The number of live cells assayed per well.
Required:	Yes
Lookup:	None
Comment:	A number is expected.
Database Table:	elispot_result
Database Column:	cell_number_reported
Database Column Type:	varchar(50)

Result Column experimentSamples.ELISPOT.txt : Comments	
Description:	Comments captures additional descriptive information that is added to the result.
Required:	No
Lookup:	None
Comment:	Comments captures additional descriptive information that is added to the result.
Database Table:	elispot_result
Database Column:	comments
Database Column Type:	varchar(500)

16. **experimentSamples.Flow_Cytometry.txt**

The flow cytometry experiment sample template defines and annotates the assay results for a sample by linking sample, experiment, and results together. The experiment samples template allows you to describe to ImmPort new experiments and biological samples or link experiments and biological samples stored in ImmPort with assay results. There is considerable flexibility in linking ImmPort content with new content in the templates and there are some general guidelines to remember. All of the experiment sample IDs in the template must always be unique in the template and must not already be stored in ImmPort. The biological sample and the experiment in the template may be new or they both may be new. If the biological sample or the experiment are new, then you must complete the required columns to describe them. The column header names in the templates indicate to what is being described and the '.xls' spreadsheet versions use color codes to indicate what is being described.

16.1. ID Meta Data Column

The ID Meta Data Columns include the ID columns that are referenced by more than one entity in the experiment sample template (for example, experiments and biological samples reference study IDs). The value entered the study ID is linked to experiment and biological sample. The experiment sample ID is the primary ID and can be defined only once and not re-used. The biological sample ID and experiment ID can be pre-defined or defined once and re-used within the template.

ID Meta Data Column experimentSamples.Flow_Cytometry.txt : Study ID	
Description:	An experiment and biological sample may be linked to a single study.
Conditional Required:	Yes for **New Experiment And Biosample**
Lookup:	None
Comment:	Please enter either a study user defined ID or ImmPort accession. This column is only required when both the experiment and biological sample are new.
Database Table:	biosample And experiment
Database Column:	study_accession
Database Column Type:	varchar(15)

16.2. Expsample Meta Data Columns

The Expsample Meta Data Columns include the columns for the combined entity Expsample.

Expsample Meta Data Column experimentSamples.Flow_Cytometry.txt : Expsample ID

Description:	The experiment sample user defined ID is an identifier chosen by the data provider to refer to this sample. This ID may be referenced by other data records (e.g. assay results). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	expsample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Expsample Meta Data Column experimentSamples.Flow_Cytometry.txt : Reagent ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The reagent identifier(s) must be stored in ImmPort or in the reagents.txt template.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Please enter either an assay reagent user defined ID or ImmPort accession.
Database Table:	expsample_2_reagent
Database Column:	reagent_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.Flow_Cytometry.txt : Treatment ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The treatment identifier(s) must be stored in ImmPort or in the treatments.txt template.
Conditional Required:	Yes for **New Expsample**

Lookup:	None
Comment:	Please enter either a treatment user defined ID or ImmPort accession.
Database Table:	expsample_2_treatment
Database Column:	treatment_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.Flow_Cytometry.txt : Expsample Name	
Description:	The experiment sample name is a display name that is available when the data is shared, but it is not referenced by other data records.
Required:	No
Lookup:	None
Comment:	The experiment sample name is an alternate identifier that is visible when the experiment sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Expsample Meta Data Column experimentSamples.Flow_Cytometry.txt : Expsample Description	
Description:	Describe important characteristics of the sample being assayed.
Required:	No
Lookup:	None
Comment:	Describe important characteristics of the sample being assayed.
Database Table:	expsample
Database Column:	description

Database Column Type:	varchar(4000)

Expsample Meta Data Column experimentSamples.Flow_Cytometry.txt : Additional Result File Names	
Description:	Separate file names by a semi-colon (;). The file size name limit is 240 characters.
Required:	No
Lookup:	None
Comment:	Please enter additional result file(s) to link to the experiment sample. The file size name limit is 240 characters.

Expsample Meta Data Column experimentSamples.Flow_Cytometry.txt : .Fcs Result File	
Description:	The primary output for flow cytometry assays is a file in .fcs format. The file size name limit is 240 characters.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	The primary output for flow cytometry assays is a file in .fcs format. The file size name limit is 240 characters.

Expsample Meta Data Column experimentSamples.Flow_Cytometry.txt : Compensation Or Control File Name(s)	
Description:	Separate file names by a semi-colon (;). The file size name limit is 240 characters.
Required:	No
Lookup:	None
Comment:	Flow cytometry assay runs include compensation and/or control files. The set of compensation/control files from an assay run should be linked to the experiment sample that is linked to the assayed sample's fcs file. The file size name limit is 240 characters.

16.3. Biosample Meta Data Columns

The Biosample Meta Data Columns include the columns for the combined entity Biosample.

Biosample Meta Data Column experimentSamples.Flow_Cytometry.txt : Biosample ID	
Description:	The biological sample user defined ID is an identifier chosen by the data provider to refer to a sample. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded. Please enter either a biological sample user defined ID or ImmPort accession. A single biological sample may be linked to an experiment sample.
Database Table:	biosample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Biosample Meta Data Column experimentSamples.Flow_Cytometry.txt : Subject ID	
Description:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived. A single subject record is permitted.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived.
Database Table:	biosample
Database Column:	subject_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.Flow_Cytometry.txt : Planned Visit ID

Description:	The link to a study's planned visit provides temporal context for a sample's derivation from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a study's planned visit user defined ID or ImmPort accession.
Database Table:	biosample
Database Column:	planned_visit_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.Flow_Cytometry.txt : Type	
Description:	The sample types are adopted from Uberon, Cell and CHEBI ontologies.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_sample_type.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	type
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.Flow_Cytometry.txt : Subtype	
Description:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Required:	No

Lookup:	None
Comment:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Database Table:	biosample
Database Column:	subtype
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.Flow_Cytometry.txt : Biosample Name	
Description:	The biological sample name is a display name that is available when the data is shared, but it is not referenced by other data.
Required:	No
Lookup:	None
Comment:	The biological sample name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Biosample Meta Data Column experimentSamples.Flow_Cytometry.txt : Biosample Description	
Description:	The biological sample description is used to describe details of the sample not captured in other columns.
Required:	No
Lookup:	None
Comment:	The biological sample description is used to describe details of the sample not captured in other columns.

Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Biosample Meta Data Column experimentSamples.Flow_Cytometry.txt : Study Time Collected	
Description:	Study time collected describes the time value for when a sample was derived from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter a number.
Database Table:	biosample
Database Column:	study_time_collected
Database Column Type:	float

Biosample Meta Data Column experimentSamples.Flow_Cytometry.txt : Study Time Collected Unit	
Description:	The time units are standard terms recommended by the HIPC Standards group.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_time_unit.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_collected_unit

Database Column Type:	varchar(25)

Biosample Meta Data Column experimentSamples.Flow_Cytometry.txt : Study Time T0 Event	
Description:	The time zero event refers to the study milestone upon which time is based.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_t0_event.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_t0_event
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.Flow_Cytometry.txt : Study Time T0 Event Specify	
Description:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Required:	No
Lookup:	None
Comment:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Database Table:	biosample
Database Column:	study_time_t0_event_specify
Database Column Type:	varchar(50)

16.4. Experiment Meta Data Columns

The Experiment Meta Data Columns include the columns for the combined entity Experiment.

Experiment Meta Data Column experimentSamples.Flow_Cytometry.txt : Experiment ID	
Description:	The experiment identifier must be stored in ImmPort or in the experiments.txt template. The experiment serves as the parent entity to bind assay results of a similar type together.
Required:	Yes
Lookup:	None
Comment:	Please enter either a experiment user defined ID or ImmPort accession.
Database Table:	experiment
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Experiment Meta Data Column experimentSamples.Flow_Cytometry.txt : Protocol ID(s)	
Description:	Please enter either a protocol user defined ID or ImmPort accession for a protocol that describes how the sample was derived and prepared. One or more identifiers can be entered per sample. Separate identifiers by semicolon (;).
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	Please enter either a protocol user defined ID or ImmPort accession. This column is required when either the experiment or biological sample are new.
Database Table:	experiment_2_protocol
Database Column:	protocol_accession
Database Column Type:	varchar(15)

Experiment Meta Data Column experimentSamples.Flow_Cytometry.txt : Experiment Name	
Description:	The experiment name is a display name that is available when the data is shared, but it is not referenced by other data.

Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	The experiment name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(500)

Experiment Meta Data Column experimentSamples.Flow_Cytometry.txt : Experiment Description	
Description:	The experiment description is used to describe details of the experiment not captured in other columns.
Required:	No
Lookup:	None
Comment:	The experiment description is used to describe details of the experiment not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Experiment Meta Data Column experimentSamples.Flow_Cytometry.txt : Measurement Technique	
Description:	The measurement technique describes the assay method.
Conditional Required:	Yes for **New Experiment**
Controlled Lookup:	Please refer to Appendix A - lk_exp_measurement_tech.

Comment:	Choose from a drop down list.
Database Table:	experiment
Database Column:	measurement_technique
Database Column Type:	varchar(50)

17. **experimentSamples.Gene_Expression_Array.txt**

The gene expression experiment sample template defines and annotates the assay results for a sample by linking sample, experiment, and results together. The experiment samples template allows you to describe to ImmPort new experiments and biological samples or link experiments and biological samples stored in ImmPort with assay results. There is considerable flexibility in linking ImmPort content with new content in the templates and there are some general guidelines to remember. All of the experiment sample IDs in the template must always be unique in the template and must not already be stored in ImmPort. The biological sample and the experiment in the template may be new or they both may be new. If the biological sample or the experiment are new, then you must complete the required columns to describe them. The column header names in the templates indicate to what is being described and the '.xls' spreadsheet versions use color codes to indicate what is being described.

17.1. ID Meta Data Column

The ID Meta Data Columns include the ID columns that are referenced by more than one entity in the experiment sample template (for example, experiments and biological samples reference study IDs). The value entered the study ID is linked to experiment and biological sample. The experiment sample ID is the primary ID and can be defined only once and not re-used. The biological sample ID and experiment ID can be pre-defined or defined once and re-used within the template.

ID Meta Data Column experimentSamples.Gene_Expression_Array.txt : Study ID	
Description:	An experiment and biological sample may be linked to a single study.
Conditional Required:	Yes for **New Experiment And Biosample**
Lookup:	None
Comment:	Please enter either a study user defined ID or ImmPort accession. This column is only required when both the experiment and biological sample are new.
Database Table:	biosample And experiment
Database Column:	study_accession
Database Column Type:	varchar(15)

17.2. Expsample Meta Data Columns

The Expsample Meta Data Columns include the columns for the combined entity Expsample.

Expsample Meta Data Column experimentSamples.Gene_Expression_Array.txt : Expsample ID

Description:	The experiment sample user defined ID is an identifier chosen by the data provider to refer to this sample. This ID may be referenced by other data records (e.g. assay results). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	expsample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Expsample Meta Data Column experimentSamples.Gene_Expression_Array.txt : Reagent ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The reagent identifier(s) must be stored in ImmPort or in the reagents.txt template.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Please enter either an assay reagent user defined ID or ImmPort accession.
Database Table:	expsample_2_reagent
Database Column:	reagent_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.Gene_Expression_Array.txt : Treatment ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The treatment identifier(s) must be stored in ImmPort or in the treatments.txt template.

Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Please enter either a treatment user defined ID or ImmPort accession.
Database Table:	expsample_2_treatment
Database Column:	treatment_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.Gene_Expression_Array.txt : Expsample Name	
Description:	The experiment sample name is a display name that is available when the data is shared, but it is not referenced by other data records.
Required:	No
Lookup:	None
Comment:	The experiment sample name is an alternate identifier that is visible when the experiment sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Expsample Meta Data Column experimentSamples.Gene_Expression_Array.txt : Expsample Description	
Description:	Describe important characteristics of the sample being assayed.
Required:	No
Lookup:	None
Comment:	Describe important characteristics of the sample being assayed.

Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Expsample Meta Data Column experimentSamples.Gene_Expression_Array.txt : Additional Result File Names	
Description:	Separate file names by a semi-colon (;). The file size name limit is 240 characters.
Required:	No
Lookup:	None
Comment:	Please enter additional result file(s) to link to the experiment sample. The file size name limit is 240 characters.

Expsample Meta Data Column experimentSamples.Gene_Expression_Array.txt : Repository Name	
Description:	ImmPort expects array gene expression results to be deposited in NCBI GEO since this is a prerequisite for publication. Please choose this repository name from the list.
Required:	No
Controlled Lookup:	Please refer to Appendix A - lk_public_repository.
Comment:	Array gene expression results are expected to be deposited in NCBI GEO Please choose this repository name from the list.
Database Table:	expsample_public_repository
Database Column:	repository_name
Database Column Type:	varchar(50)

Expsample Meta Data Column experimentSamples.Gene_Expression_Array.txt : Repository Accession

Description:	The public repository accession should be the most granular or highest resolution provided (e.g. sample level accession, not sample group accession).
Required:	No
Lookup:	None
Comment:	Enter the accession that links to the assay result file(s).
Database Table:	expsample_public_repository
Database Column:	repository_accession
Database Column Type:	varchar(20)

17.3. Biosample Meta Data Columns

The Biosample Meta Data Columns include the columns for the combined entity Biosample.

Biosample Meta Data Column experimentSamples.Gene_Expression_Array.txt : Biosample ID	
Description:	The biological sample user defined ID is an identifier chosen by the data provider to refer to a sample. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded. Please enter either a biological sample user defined ID or ImmPort accession. A single biological sample may be linked to an experiment sample.
Database Table:	biosample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Biosample Meta Data Column experimentSamples.Gene_Expression_Array.txt : Subject ID

Description:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived. A single subject record is permitted.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived.
Database Table:	biosample
Database Column:	subject_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.Gene_Expression_Array.txt : Planned Visit ID	
Description:	The link to a study's planned visit provides temporal context for a sample's derivation from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a study's planned visit user defined ID or ImmPort accession.
Database Table:	biosample
Database Column:	planned_visit_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.Gene_Expression_Array.txt : Type	
Description:	The sample types are adopted from Uberon, Cell and CHEBI ontologies.
Conditional Required:	Yes for **New Biosample**

Controlled Lookup:	Please refer to Appendix A - lk_sample_type.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	type
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.Gene_Expression_Array.txt : Subtype	
Description:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Required:	No
Lookup:	None
Comment:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Database Table:	biosample
Database Column:	subtype
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.Gene_Expression_Array.txt : Biosample Name	
Description:	The biological sample name is a display name that is available when the data is shared, but it is not referenced by other data.
Required:	No
Lookup:	None
Comment:	The biological sample name is an alternate identifier that is visible when the sample is shared.

Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Biosample Meta Data Column experimentSamples.Gene_Expression_Array.txt : Biosample Description	
Description:	The biological sample description is used to describe details of the sample not captured in other columns.
Required:	No
Lookup:	None
Comment:	The biological sample description is used to describe details of the sample not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Biosample Meta Data Column experimentSamples.Gene_Expression_Array.txt : Study Time Collected	
Description:	Study time collected describes the time value for when a sample was derived from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter a number.
Database Table:	biosample
Database Column:	study_time_collected

Database Column Type:	float

Biosample Meta Data Column experimentSamples.Gene_Expression_Array.txt : Study Time Collected Unit	
Description:	The time units are standard terms recommended by the HIPC Standards group.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_time_unit.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_collected_unit
Database Column Type:	varchar(25)

Biosample Meta Data Column experimentSamples.Gene_Expression_Array.txt : Study Time T0 Event	
Description:	The time zero event refers to the study milestone upon which time is based.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_t0_event.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_t0_event
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.Gene_Expression_Array.txt : Study Time T0 Event Specify	
Description:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Required:	No
Lookup:	None
Comment:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Database Table:	biosample
Database Column:	study_time_t0_event_specify
Database Column Type:	varchar(50)

17.4. Experiment Meta Data Columns

The Experiment Meta Data Columns include the columns for the combined entity Experiment.

Experiment Meta Data Column experimentSamples.Gene_Expression_Array.txt : Experiment ID	
Description:	The experiment identifier must be stored in ImmPort or in the experiments.txt template. The experiment serves as the parent entity to bind assay results of a similar type together.
Required:	Yes
Lookup:	None
Comment:	Please enter either a experiment user defined ID or ImmPort accession.
Database Table:	experiment
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Experiment Meta Data Column experimentSamples.Gene_Expression_Array.txt : Protocol ID(s)

Description:	Please enter either a protocol user defined ID or ImmPort accession for a protocol that describes how the sample was derived and prepared. One or more identifiers can be entered per sample. Separate identifiers by semicolon (;).
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	Please enter either a protocol user defined ID or ImmPort accession. This column is required when either the experiment or biological sample are new.
Database Table:	experiment_2_protocol
Database Column:	protocol_accession
Database Column Type:	varchar(15)

Experiment Meta Data Column experimentSamples.Gene_Expression_Array.txt : Experiment Name	
Description:	The experiment name is a display name that is available when the data is shared, but it is not referenced by other data.
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	The experiment name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(500)

Experiment Meta Data Column experimentSamples.Gene_Expression_Array.txt : Experiment Description	
Description:	The experiment description is used to describe details of the experiment not captured in other columns.

Required:	No
Lookup:	None
Comment:	The experiment description is used to describe details of the experiment not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Experiment Meta Data Column experimentSamples.Gene_Expression_Array.txt : Measurement Technique	
Description:	The measurement technique describes the assay method.
Conditional Required:	Yes for **New Experiment**
Controlled Lookup:	Please refer to Appendix A - lk_exp_measurement_tech.
Comment:	Choose from a drop down list.
Database Table:	experiment
Database Column:	measurement_technique
Database Column Type:	varchar(50)

18. **experimentSamples.Genotyping_Array.txt**

The genotyping experiment sample template defines and annotates the assay results for a sample by linking sample, experiment, and results together. The experiment samples template allows you to describe to ImmPort new experiments and biological samples or link experiments and biological samples stored in ImmPort with assay results. There is considerable flexibility in linking ImmPort content with new content in the templates and there are some general guidelines to remember. All of the experiment sample IDs in the template must always be unique in the template and must not already be stored in ImmPort. The biological sample and the experiment in the template may be new or they both may be new. If the biological sample or the experiment are new, then you must complete the required columns to describe them. The column header names in the templates indicate to what is being described and the '.xls' spreadsheet versions use color codes to indicate what is being described.

18.1. ID Meta Data Column

The ID Meta Data Columns include the ID columns that are referenced by more than one entity in the experiment sample template (for example, experiments and biological samples reference study IDs). The value entered the study ID is linked to experiment and biological sample. The experiment sample ID is the primary ID and can be defined only once and not re-used. The biological sample ID and experiment ID can be pre-defined or defined once and re-used within the template.

ID Meta Data Column experimentSamples.Genotyping_Array.txt : Study ID	
Description:	An experiment and biological sample may be linked to a single study.
Conditional Required:	Yes for **New Experiment And Biosample**
Lookup:	None
Comment:	Please enter either a study user defined ID or ImmPort accession. This column is only required when both the experiment and biological sample are new.
Database Table:	biosample And experiment
Database Column:	study_accession
Database Column Type:	varchar(15)

18.2. Expsample Meta Data Columns

The Expsample Meta Data Columns include the columns for the combined entity Expsample.

Expsample Meta Data Column experimentSamples.Genotyping_Array.txt : Expsample ID

Description:	The experiment sample user defined ID is an identifier chosen by the data provider to refer to this sample. This ID may be referenced by other data records (e.g. assay results). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	expsample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Expsample Meta Data Column experimentSamples.Genotyping_Array.txt : Reagent ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The reagent identifier(s) must be stored in ImmPort or in the reagents.txt template.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Please enter either an assay reagent user defined ID or ImmPort accession.
Database Table:	expsample_2_reagent
Database Column:	reagent_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.Genotyping_Array.txt : Treatment ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The treatment identifier(s) must be stored in ImmPort or in the treatments.txt template.
Conditional Required:	Yes for **New Expsample**

Lookup:	None
Comment:	Please enter either a treatment user defined ID or ImmPort accession.
Database Table:	expsample_2_treatment
Database Column:	treatment_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.Genotyping_Array.txt : Expsample Name	
Description:	The experiment sample name is a display name that is available when the data is shared, but it is not referenced by other data records.
Required:	No
Lookup:	None
Comment:	The experiment sample name is an alternate identifier that is visible when the experiment sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Expsample Meta Data Column experimentSamples.Genotyping_Array.txt : Expsample Description	
Description:	Describe important characteristics of the sample being assayed.
Required:	No
Lookup:	None
Comment:	Describe important characteristics of the sample being assayed.
Database Table:	expsample

Database Column:	description
Database Column Type:	varchar(4000)

Expsample Meta Data Column experimentSamples.Genotyping_Array.txt : Additional Result File Names	
Description:	Separate file names by a semi-colon (;). The file size name limit is 240 characters.
Required:	No
Lookup:	None
Comment:	Please enter additional result file(s) to link to the experiment sample. The file size name limit is 240 characters.

Expsample Meta Data Column experimentSamples.Genotyping_Array.txt : Repository Name	
Description:	ImmPort expects genotyping results to be deposited in dbGAP since this is a prerequisite for publication. In order to avoid duplication of data upload by requiring the same data be sent to ImmPort as well as dbGAP, ImmPort requires only the dbGAP accession.
Required:	No
Controlled Lookup:	Please refer to Appendix A - lk_public_repository.
Comment:	Genotyping results are expected to be deposited in dbGAP. Please choose this repository name from the list.
Database Table:	expsample_public_repository
Database Column:	repository_name
Database Column Type:	varchar(50)

Expsample Meta Data Column experimentSamples.Genotyping_Array.txt : Repository Accession

Description:	The public repository accession should be the most granular or highest resolution provided (e.g. sample level accession, not sample group accession).
Required:	No
Lookup:	None
Comment:	Enter the accession that links to the assay result file(s).
Database Table:	expsample_public_repository
Database Column:	repository_accession
Database Column Type:	varchar(20)

18.3. Biosample Meta Data Columns

The Biosample Meta Data Columns include the columns for the combined entity Biosample.

Biosample Meta Data Column experimentSamples.Genotyping_Array.txt : Biosample ID	
Description:	The biological sample user defined ID is an identifier chosen by the data provider to refer to a sample. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded. Please enter either a biological sample user defined ID or ImmPort accession. A single biological sample may be linked to an experiment sample.
Database Table:	biosample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Biosample Meta Data Column experimentSamples.Genotyping_Array.txt : Subject ID

Description:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived. A single subject record is permitted.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived.
Database Table:	biosample
Database Column:	subject_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.Genotyping_Array.txt : Planned Visit ID	
Description:	The link to a study's planned visit provides temporal context for a sample's derivation from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a study's planned visit user defined ID or ImmPort accession.
Database Table:	biosample
Database Column:	planned_visit_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.Genotyping_Array.txt : Type	
Description:	The sample types are adopted from Uberon, Cell and CHEBI ontologies.
Conditional Required:	Yes for **New Biosample**

Controlled Lookup:	Please refer to Appendix A - lk_sample_type.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	type
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.Genotyping_Array.txt : Subtype	
Description:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Required:	No
Lookup:	None
Comment:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Database Table:	biosample
Database Column:	subtype
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.Genotyping_Array.txt : Biosample Name	
Description:	The biological sample name is a display name that is available when the data is shared, but it is not referenced by other data.
Required:	No
Lookup:	None
Comment:	The biological sample name is an alternate identifier that is visible when the sample is shared.

Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Biosample Meta Data Column experimentSamples.Genotyping_Array.txt : Biosample Description	
Description:	The biological sample description is used to describe details of the sample not captured in other columns.
Required:	No
Lookup:	None
Comment:	The biological sample description is used to describe details of the sample not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Biosample Meta Data Column experimentSamples.Genotyping_Array.txt : Study Time Collected	
Description:	Study time collected describes the time value for when a sample was derived from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter a number.
Database Table:	biosample
Database Column:	study_time_collected

Database Column Type:	float

Biosample Meta Data Column experimentSamples.Genotyping_Array.txt : Study Time Collected Unit	
Description:	The time units are standard terms recommended by the HIPC Standards group.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_time_unit.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_collected_unit
Database Column Type:	varchar(25)

Biosample Meta Data Column experimentSamples.Genotyping_Array.txt : Study Time T0 Event	
Description:	The time zero event refers to the study milestone upon which time is based.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_t0_event.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_t0_event
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.Genotyping_Array.txt : Study Time T0 Event Specify	
Description:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Required:	No
Lookup:	None
Comment:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Database Table:	biosample
Database Column:	study_time_t0_event_specify
Database Column Type:	varchar(50)

18.4. Experiment Meta Data Columns

The Experiment Meta Data Columns include the columns for the combined entity Experiment.

Experiment Meta Data Column experimentSamples.Genotyping_Array.txt : Experiment ID	
Description:	The experiment identifier must be stored in ImmPort or in the experiments.txt template. The experiment serves as the parent entity to bind assay results of a similar type together.
Required:	Yes
Lookup:	None
Comment:	Please enter either a experiment user defined ID or ImmPort accession.
Database Table:	experiment
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Experiment Meta Data Column experimentSamples.Genotyping_Array.txt : Protocol ID(s)

Description:	Please enter either a protocol user defined ID or ImmPort accession for a protocol that describes how the sample was derived and prepared. One or more identifiers can be entered per sample. Separate identifiers by semicolon (;).
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	Please enter either a protocol user defined ID or ImmPort accession. This column is required when either the experiment or biological sample are new.
Database Table:	experiment_2_protocol
Database Column:	protocol_accession
Database Column Type:	varchar(15)

Experiment Meta Data Column experimentSamples.Genotyping_Array.txt : Experiment Name	
Description:	The experiment name is a display name that is available when the data is shared, but it is not referenced by other data.
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	The experiment name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(500)

Experiment Meta Data Column experimentSamples.Genotyping_Array.txt : Experiment Description	
Description:	The experiment description is used to describe details of the experiment not captured in other columns.

Required:	No
Lookup:	None
Comment:	The experiment description is used to describe details of the experiment not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Experiment Meta Data Column experimentSamples.Genotyping_Array.txt : Measurement Technique	
Description:	The measurement technique describes the assay method.
Conditional Required:	Yes for **New Experiment**
Controlled Lookup:	Please refer to Appendix A - lk_exp_measurement_tech.
Comment:	Choose from a drop down list.
Database Table:	experiment
Database Column:	measurement_technique
Database Column Type:	varchar(50)

19. **experimentSamples.HAI.txt**

The HAI experiment sample template defines and annotates the assay results for a sample by linking sample, experiment, and results together. More than one analyte's results per assayed sample may be reported by copying the group of columns 'Virus Strain'and 'Titration Dilution Value' needed to describe each assay result. The experiment samples template allows you to describe to ImmPort new experiments and biological samples or link experiments and biological samples stored in ImmPort with assay results. There is considerable flexibility in linking ImmPort content with new content in the templates and there are some general guidelines to remember. All of the experiment sample IDs in the template must always be unique in the template and must not already be stored in ImmPort. The biological sample and the experiment in the template may be new or they both may be new. If the biological sample or the experiment is new, then you must complete the required columns to describe them. When defining a new experiment or biological sample, it is only necessary to complete the required descriptive columns once per experiment or biological sample. The column header names in the templates indicate to what is being described and the '.xls' spreadsheet versions use color codes to indicate what is being described.

19.1. ID Meta Data Column

The ID Meta Data Columns include the ID columns that are referenced by more than one entity in the experiment sample template (for example, experiments and biological samples reference study IDs). The value entered the study ID is linked to experiment and biological sample. The experiment sample ID is the primary ID and can be pre-defined or defined only once and not reused. The biological sample ID and experiment ID can be pre-defined or defined once and re-used within the template.

ID Meta Data Column experimentSamples.HAI.txt : Study ID	
Description:	An experiment and biological sample may be linked to a single study.
Conditional Required:	Yes for **New Experiment And Biosample**
Lookup:	None
Comment:	Please enter either a study user defined ID or ImmPort accession. This column is only required when both the experiment and biological sample are new.
Database Table:	biosample And experiment
Database Column:	study_accession
Database Column Type:	varchar(15)

19.2. Expsample Meta Data Columns

The Expsample Meta Data Columns include the columns for the combined entity Expsample.

Expsample Meta Data Column experimentSamples.HAI.txt : Expsample ID	
Description:	The experiment sample user defined ID is an identifier chosen by the data provider to refer to this sample. This ID may be referenced by other data records (e.g. assay results). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	expsample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Expsample Meta Data Column experimentSamples.HAI.txt : Expsample Name	
Description:	The experiment sample name is a display name that is available when the data is shared, but it is not referenced by other data.
Required:	No
Lookup:	None
Comment:	The experiment sample name is an alternate identifier that is visible when the experiment sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Expsample Meta Data Column experimentSamples.HAI.txt : Expsample Description	
Description:	Describe important characteristics of the sample being assayed.

Required:	No
Lookup:	None
Comment:	Describe important characteristics of the sample being assayed.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Expsample Meta Data Column experimentSamples.HAI.txt : Reagent ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The reagent identifier(s) must be stored in ImmPort or in the reagents.txt template.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Please enter either an assay reagent user defined ID or ImmPort accession.
Database Table:	expsample_2_reagent
Database Column:	reagent_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.HAI.txt : Treatment ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The treatment identifier(s) must be stored in ImmPort or in the treatments.txt template.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Please enter either a treatment user defined ID or ImmPort accession.

Database Table:	expsample_2_treatment
Database Column:	treatment_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.HAI.txt : Additional Result File Names	
Description:	Separate file names by a semi-colon (;). The file size name limit is 240 characters.
Required:	No
Lookup:	None
Comment:	Please enter additional result file(s) to link to the experiment sample. The file size name limit is 240 characters.

19.3. Biosample Meta Data Columns

The Biosample Meta Data Columns include the columns for the combined entity Biosample.

Biosample Meta Data Column experimentSamples.HAI.txt : Biosample ID	
Description:	The biological sample user defined ID is an identifier chosen by the data provider to refer to a sample. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded. Please enter either a biological sample user defined ID or ImmPort accession. A single biological sample may be linked to an experiment sample.
Database Table:	biosample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Biosample Meta Data Column experimentSamples.HAI.txt : Type	
Description:	The sample types are adopted from Uberon, Cell and CHEBI ontologies.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_sample_type.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	type
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.HAI.txt : Subtype	
Description:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Required:	No
Lookup:	None
Comment:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Database Table:	biosample
Database Column:	subtype
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.HAI.txt : Biosample Name	
Description:	The biological sample name is a display name that is available when the data is shared, but it is not referenced by other data.

Required:	No
Lookup:	None
Comment:	The biological sample name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Biosample Meta Data Column experimentSamples.HAI.txt : Biosample Description	
Description:	The biological sample description is used to describe details of the sample not captured in other columns.
Required:	No
Lookup:	None
Comment:	The biological sample description is used to describe details of the sample not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Biosample Meta Data Column experimentSamples.HAI.txt : Subject ID	
Description:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived. A single subject record is permitted.
Conditional Required:	Yes for **New Biosample**
Lookup:	None

Comment:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived.
Database Table:	biosample
Database Column:	subject_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.HAI.txt : Planned Visit ID	
Description:	The link to a study's planned visit provides temporal context for a sample's derivation from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a study's planned visit user defined ID or ImmPort accession.
Database Table:	biosample
Database Column:	planned_visit_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.HAI.txt : Study Time Collected	
Description:	Study time collected describes the time value for when a sample was derived from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter a number.
Database Table:	biosample

Database Column:	study_time_collected
Database Column Type:	float

Biosample Meta Data Column experimentSamples.HAI.txt : Study Time Collected Unit	
Description:	The time units are standard terms recommended by the HIPC Standards group.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_time_unit.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_collected_unit
Database Column Type:	varchar(25)

Biosample Meta Data Column experimentSamples.HAI.txt : Study Time T0 Event	
Description:	The time zero event refers to the study milestone upon which time is based.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_t0_event.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_t0_event
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.HAI.txt : Study Time T0 Event Specify	
Description:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Required:	No
Lookup:	None
Comment:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Database Table:	biosample
Database Column:	study_time_t0_event_specify
Database Column Type:	varchar(50)

19.4. Experiment Meta Data Columns

The Experiment Meta Data Columns include the columns for the combined entity Experiment.

Experiment Meta Data Column experimentSamples.HAI.txt : Experiment ID	
Description:	The experiment identifier must be stored in ImmPort or in the experiments.txt template. The experiment serves as the parent entity to bind assay results of a similar type together.
Required:	Yes
Lookup:	None
Comment:	Please enter either a experiment user defined ID or ImmPort accession.
Database Table:	experiment
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Experiment Meta Data Column experimentSamples.HAI.txt : Protocol ID(s)

Description:	Please enter either a protocol user defined ID or ImmPort accession for a protocol that describes how the sample was derived and prepared. One or more identifiers can be entered per sample. Separate identifiers by semicolon (;).
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	Please enter either a protocol user defined ID or ImmPort accession. This column is required when either the experiment or biological sample are new.
Database Table:	experiment_2_protocol
Database Column:	protocol_accession
Database Column Type:	varchar(15)

Experiment Meta Data Column experimentSamples.HAI.txt : Experiment Name	
Description:	The experiment name is a display name that is available when the data is shared, but it is not referenced by other data.
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	The experiment name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(500)

Experiment Meta Data Column experimentSamples.HAI.txt : Experiment Description	
Description:	The experiment description is used to describe details of the experiment not captured in other columns.
Required:	No

Lookup:	None
Comment:	The experiment description is used to describe details of the experiment not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Experiment Meta Data Column experimentSamples.HAI.txt : Measurement Technique	
Description:	The measurement technique describes the assay method.
Conditional Required:	Yes for **New Experiment**
Controlled Lookup:	Please refer to Appendix A - lk_exp_measurement_tech.
Comment:	Choose from a drop down list.
Database Table:	experiment
Database Column:	measurement_technique
Database Column Type:	varchar(50)

19.5. Separator Column

This column must always appear in the template and must immediately follow after the last meta data column and before the (repeating) result column groups.

Separator Column experimentSamples.HAI.txt : Result Separator Column	
Description:	This pseudo column separates meta data from results.
Required:	No
Lookup:	None

Comment:	This pseudo column separates the results (lab tests) from the lab test panel meta data. It must always appear and be the column that appears immediately after the last meta-data column and before any result columns.

19.6. Result Columns

Each result group (that is, result) consists of a group of the following result columns, where the **first column** of the group must always be '**Virus Strain Reported**'.

Result Column experimentSamples.HAI.txt : Virus Strain Reported	
Description:	The name of the virus strain used in the assay. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_virus_strain with preferred column(s) virus_strain_preferred.
Comment:	The name of the virus strain used in the assay. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared. This COLUMN must appear as the FIRST COLUMN for a repeating result column group.
Database Table:	hai_result
Database Column:	virus_strain_reported
Database Column Type:	varchar(200)

Result Column experimentSamples.HAI.txt : Value Reported	
Description:	The maximum sample dilution factor that continues to demonstrate inhibition of hemagglutination.
Required:	Yes
Lookup:	None
Comment:	A number is expected.
Database Table:	hai_result
Database Column:	value_reported

Database Column Type:	varchar(50)

Result Column experimentSamples.HAI.txt : Unit Reported	
Description:	The dilution factor unit.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_titer_unit with preferred column(s) titer_unit_preferred.
Comment:	The dilution factor unit.
Database Table:	hai_result
Database Column:	unit_reported
Database Column Type:	varchar(200)

Result Column experimentSamples.HAI.txt : Comments	
Description:	Comments captures additional descriptive information that is added to the result.
Required:	No
Lookup:	None
Comment:	Comments captures additional descriptive information that is added to the result.
Database Table:	hai_result
Database Column:	comments
Database Column Type:	varchar(500)

20. **experimentSamples.HLA.txt**

The HLA experiment sample template defines and annotates the assay results for a sample by linking sample, experiment, and results together. The experiment samples template allows you to describe to ImmPort new experiments and biological samples or link experiments and biological samples stored in ImmPort with assay results. There is considerable flexibility in linking ImmPort content with new content in the templates and there are some general guidelines to remember. All of the experiment sample IDs in the template must always be unique in the template and must not already be stored in ImmPort. The biological sample and the experiment in the template may be new or they both may be new. If the biological sample or the experiment are new, then you must complete the required columns to describe them. The column header names in the templates indicate to what is being described and the '.xls' spreadsheet versions use color codes to indicate what is being described.

20.1. ID Meta Data Column

The ID Meta Data Columns include the ID columns that are referenced by more than one entity in the experiment sample template (for example, experiments and biological samples reference study IDs). The value entered the study ID is linked to experiment and biological sample. The experiment sample ID is the primary ID and can be defined only once and not re-used. The biological sample ID and experiment ID can be pre-defined or defined once and re-used within the template.

ID Meta Data Column experimentSamples.HLA.txt : Study ID	
Description:	An experiment and biological sample may be linked to a single study.
Conditional Required:	Yes for **New Experiment And Biosample**
Lookup:	None
Comment:	Please enter either a study user defined ID or ImmPort accession. This column is only required when both the experiment and biological sample are new.
Database Table:	biosample And experiment
Database Column:	study_accession
Database Column Type:	varchar(15)

20.2. Expsample Meta Data Columns

The Expsample Meta Data Columns include the columns for the combined entity Expsample.

Expsample Meta Data Column experimentSamples.HLA.txt : Expsample ID

Description:	The experiment sample user defined ID is an identifier chosen by the data provider to refer to this sample. This ID may be referenced by other data records (e.g. assay results). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	expsample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Expsample Meta Data Column experimentSamples.HLA.txt : Reagent ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The reagent identifier(s) must be stored in ImmPort or in the reagents.txt template.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Please enter either an assay reagent user defined ID or ImmPort accession.
Database Table:	expsample_2_reagent
Database Column:	reagent_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.HLA.txt : Treatment ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The treatment identifier(s) must be stored in ImmPort or in the treatments.txt template.
Conditional Required:	Yes for **New Expsample**

Lookup:	None
Comment:	Please enter either a treatment user defined ID or ImmPort accession.
Database Table:	expsample_2_treatment
Database Column:	treatment_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.HLA.txt : Expsample Name	
Description:	The experiment sample name is a display name that is available when the data is shared, but it is not referenced by other data records.
Required:	No
Lookup:	None
Comment:	The experiment sample name is an alternate identifier that is visible when the experiment sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Expsample Meta Data Column experimentSamples.HLA.txt : Expsample Description	
Description:	Describe important characteristics of the sample being assayed.
Required:	No
Lookup:	None
Comment:	Describe important characteristics of the sample being assayed.
Database Table:	expsample
Database Column:	description

Database Column Type:	varchar(4000)

Expsample Meta Data Column experimentSamples.HLA.txt : Additional Result File Names	
Description:	Separate file names by a semi-colon (;). The file size name limit is 240 characters.
Required:	No
Lookup:	None
Comment:	Please enter additional result file(s) to link to the experiment sample. The file size name limit is 240 characters.

Expsample Meta Data Column experimentSamples.HLA.txt : ImmPort Template?	
Description:	If the result file is an ImmPort results template (strongly recommended by NIAID DAIT), choose 'Yes' from the drop down list and do not include a file name in the "Result File Name" column. If the result file is not an ImmPort results template, choose 'No' from the drop down list and include a file name in the "Result File Name" column.
Conditional Required:	Yes for **New Expsample**
Controlled Lookup:	Please refer to Appendix A - lk_yes_no.
Comment:	If the result file is an ImmPort results template (strongly recommended by NIAID DAIT), choose 'Yes' from the drop down list and do not include a file name in the "Result File Name" column. If the result file is not an ImmPort results template, choose 'No' from the drop down list and include a file name in the "Result File Name" column.

Expsample Meta Data Column experimentSamples.HLA.txt : Result File Name	
Description:	Completing this column is conditional upon whether the "ImmPort Template?" column value is set to "Yes" or "No". If the "ImmPort Template?" column value is set to "Yes", do not enter a file name in the "Result File Name" column. If the "ImmPort Template?" column value is set to "No", enter a file name in the "Result File Name" column. ImmPort supports results templates for many of the commonly used immunological assay methods. These templates facilitate the sharing and re-use of results data in a standard format. The file size name limit is 240 characters.
Required:	No
Lookup:	None

Comment:	Please use the ImmPort template for this assay result (as opposed to custom file formats) to standardize the format of the data when it is shared. If you use the ImmPort template (strongly recommended by NIAID DAIT), do not enter the template name in this column and set the "ImmPort Template?" column value to "Yes". If you do not use the ImmPort template, enter the file name (including file extension) that contains assay results for the experiment sample and set the "ImmPort Template?" column value to "No". The file size name limit is 240 characters.

20.3. Biosample Meta Data Columns

The Biosample Meta Data Columns include the columns for the combined entity Biosample.

Biosample Meta Data Column experimentSamples.HLA.txt : Biosample ID	
Description:	The biological sample user defined ID is an identifier chosen by the data provider to refer to a sample. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded. Please enter either a biological sample user defined ID or ImmPort accession. A single biological sample may be linked to an experiment sample.
Database Table:	biosample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Biosample Meta Data Column experimentSamples.HLA.txt : Subject ID	
Description:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived. A single subject record is permitted.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived.

Database Table:	biosample
Database Column:	subject_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.HLA.txt : Planned Visit ID	
Description:	The link to a study's planned visit provides temporal context for a sample's derivation from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a study's planned visit user defined ID or ImmPort accession.
Database Table:	biosample
Database Column:	planned_visit_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.HLA.txt : Type	
Description:	The sample types are adopted from Uberon, Cell and CHEBI ontologies.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_sample_type.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	type

Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.HLA.txt : Subtype	
Description:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Required:	No
Lookup:	None
Comment:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Database Table:	biosample
Database Column:	subtype
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.HLA.txt : Biosample Name	
Description:	The biological sample name is a display name that is available when the data is shared, but it is not referenced by other data.
Required:	No
Lookup:	None
Comment:	The biological sample name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Biosample Meta Data Column experimentSamples.HLA.txt : Biosample Description	
Description:	The biological sample description is used to describe details of the sample not captured in other columns.
Required:	No
Lookup:	None
Comment:	The biological sample description is used to describe details of the sample not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Biosample Meta Data Column experimentSamples.HLA.txt : Study Time Collected	
Description:	Study time collected describes the time value for when a sample was derived from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter a number.
Database Table:	biosample
Database Column:	study_time_collected
Database Column Type:	float

Biosample Meta Data Column experimentSamples.HLA.txt : Study Time Collected Unit	
Description:	The time units are standard terms recommended by the HIPC Standards group.
Conditional Required:	Yes for **New Biosample**

Controlled Lookup:	Please refer to Appendix A - lk_time_unit.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_collected_unit
Database Column Type:	varchar(25)

Biosample Meta Data Column experimentSamples.HLA.txt : Study Time T0 Event	
Description:	The time zero event refers to the study milestone upon which time is based.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_t0_event.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_t0_event
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.HLA.txt : Study Time T0 Event Specify	
Description:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Required:	No
Lookup:	None
Comment:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Database Table:	biosample

Database Column:	study_time_t0_event_specify
Database Column Type:	varchar(50)

20.4. Experiment Meta Data Columns

The Experiment Meta Data Columns include the columns for the combined entity Experiment.

Experiment Meta Data Column experimentSamples.HLA.txt : Experiment ID	
Description:	The experiment identifier must be stored in ImmPort or in the experiments.txt template. The experiment serves as the parent entity to bind assay results of a similar type together.
Required:	Yes
Lookup:	None
Comment:	Please enter either a experiment user defined ID or ImmPort accession.
Database Table:	experiment
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Experiment Meta Data Column experimentSamples.HLA.txt : Protocol ID(s)	
Description:	Please enter either a protocol user defined ID or ImmPort accession for a protocol that describes how the sample was derived and prepared. One or more identifiers can be entered per sample. Separate identifiers by semicolon (;).
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	Please enter either a protocol user defined ID or ImmPort accession. This column is required when either the experiment or biological sample are new.
Database Table:	experiment_2_protocol

Database Column:	protocol_accession
Database Column Type:	varchar(15)

Experiment Meta Data Column experimentSamples.HLA.txt : Experiment Name	
Description:	The experiment name is a display name that is available when the data is shared, but it is not referenced by other data.
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	The experiment name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(500)

Experiment Meta Data Column experimentSamples.HLA.txt : Experiment Description	
Description:	The experiment description is used to describe details of the experiment not captured in other columns.
Required:	No
Lookup:	None
Comment:	The experiment description is used to describe details of the experiment not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Experiment Meta Data Column experimentSamples.HLA.txt : Measurement Technique	
Description:	The measurement technique describes the assay method.
Conditional Required:	Yes for **New Experiment**
Controlled Lookup:	Please refer to Appendix A - lk_exp_measurement_tech.
Comment:	Choose from a drop down list.
Database Table:	experiment
Database Column:	measurement_technique
Database Column Type:	varchar(50)

21. **experimentSamples.Image_Histology.txt**

The image histology experiment sample template defines and annotates the assay results for a sample by linking sample, experiment, and results together. The experiment samples template allows you to describe to ImmPort new experiments and biological samples or link experiments and biological samples stored in ImmPort with assay results. There is considerable flexibility in linking ImmPort content with new content in the templates and there are some general guidelines to remember. All of the experiment sample IDs in the template must always be unique in the template and must not already be stored in ImmPort. The biological sample and the experiment in the template may be new or they both may be new. If the biological sample or the experiment are new, then you must complete the required columns to describe them. The column header names in the templates indicate to what is being described and the '.xls' spreadsheet versions use color codes to indicate what is being described.

21.1. ID Meta Data Column

The ID Meta Data Columns include the ID columns that are referenced by more than one entity in the experiment sample template (for example, experiments and biological samples reference study IDs). The value entered the study ID is linked to experiment and biological sample. The experiment sample ID is the primary ID and can be defined only once and not re-used. The biological sample ID and experiment ID can be pre-defined or defined once and re-used within the template.

ID Meta Data Column experimentSamples.Image_Histology.txt : Study ID	
Description:	An experiment and biological sample may be linked to a single study.
Conditional Required:	Yes for **New Experiment And Biosample**
Lookup:	None
Comment:	Please enter either a study user defined ID or ImmPort accession. This column is only required when both the experiment and biological sample are new.
Database Table:	biosample And experiment
Database Column:	study_accession
Database Column Type:	varchar(15)

21.2. Expsample Meta Data Columns

The Expsample Meta Data Columns include the columns for the combined entity Expsample.

Expsample Meta Data Column experimentSamples.Image_Histology.txt : Expsample ID

Description:	The experiment sample user defined ID is an identifier chosen by the data provider to refer to this sample. This ID may be referenced by other data records (e.g. assay results). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	expsample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Expsample Meta Data Column experimentSamples.Image_Histology.txt : Reagent ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The reagent identifier(s) must be stored in ImmPort or in the reagents.txt template.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Please enter either an assay reagent user defined ID or ImmPort accession.
Database Table:	expsample_2_reagent
Database Column:	reagent_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.Image_Histology.txt : Treatment ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The treatment identifier(s) must be stored in ImmPort or in the treatments.txt template.
Conditional Required:	Yes for **New Expsample**

Lookup:	None
Comment:	Please enter either a treatment user defined ID or ImmPort accession.
Database Table:	expsample_2_treatment
Database Column:	treatment_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.Image_Histology.txt : Expsample Name	
Description:	The experiment sample name is a display name that is available when the data is shared, but it is not referenced by other data records.
Required:	No
Lookup:	None
Comment:	The experiment sample name is an alternate identifier that is visible when the experiment sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Expsample Meta Data Column experimentSamples.Image_Histology.txt : Expsample Description	
Description:	Describe important characteristics of the sample being assayed.
Required:	No
Lookup:	None
Comment:	Describe important characteristics of the sample being assayed.
Database Table:	expsample

Database Column:	description
Database Column Type:	varchar(4000)

Expsample Meta Data Column experimentSamples.Image_Histology.txt : Additional Result File Names	
Description:	Separate file names by a semi-colon (;). The file size name limit is 240 characters.
Required:	No
Lookup:	None
Comment:	Please enter additional result file(s) to link to the experiment sample. The file size name limit is 240 characters.

Expsample Meta Data Column experimentSamples.Image_Histology.txt : Result File Name	
Description:	Enter the file name for this assay result. The file size name limit is 240 characters.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Enter the file name for this assay result. The file size name limit is 240 characters.

21.3. Biosample Meta Data Columns

The Biosample Meta Data Columns include the columns for the combined entity Biosample.

Biosample Meta Data Column experimentSamples.Image_Histology.txt : Biosample ID	
Description:	The biological sample user defined ID is an identifier chosen by the data provider to refer to a sample. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None

Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded. Please enter either a biological sample user defined ID or ImmPort accession. A single biological sample may be linked to an experiment sample.
Database Table:	biosample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Biosample Meta Data Column experimentSamples.Image_Histology.txt : Subject ID	
Description:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived. A single subject record is permitted.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived.
Database Table:	biosample
Database Column:	subject_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.Image_Histology.txt : Planned Visit ID	
Description:	The link to a study's planned visit provides temporal context for a sample's derivation from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a study's planned visit user defined ID or ImmPort accession.

Database Table:	biosample
Database Column:	planned_visit_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.Image_Histology.txt : Type	
Description:	The sample types are adopted from Uberon, Cell and CHEBI ontologies.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_sample_type.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	type
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.Image_Histology.txt : Subtype	
Description:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Required:	No
Lookup:	None
Comment:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Database Table:	biosample
Database Column:	subtype

Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.Image_Histology.txt : Biosample Name	
Description:	The biological sample name is a display name that is available when the data is shared, but it is not referenced by other data.
Required:	No
Lookup:	None
Comment:	The biological sample name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Biosample Meta Data Column experimentSamples.Image_Histology.txt : Biosample Description	
Description:	The biological sample description is used to describe details of the sample not captured in other columns.
Required:	No
Lookup:	None
Comment:	The biological sample description is used to describe details of the sample not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Biosample Meta Data Column experimentSamples.Image_Histology.txt : Study Time Collected

Description:	Study time collected describes the time value for when a sample was derived from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter a number.
Database Table:	biosample
Database Column:	study_time_collected
Database Column Type:	float

Biosample Meta Data Column experimentSamples.Image_Histology.txt : Study Time Collected Unit	
Description:	The time units are standard terms recommended by the HIPC Standards group.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_time_unit.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_collected_unit
Database Column Type:	varchar(25)

Biosample Meta Data Column experimentSamples.Image_Histology.txt : Study Time T0 Event	
Description:	The time zero event refers to the study milestone upon which time is based.
Conditional Required:	Yes for **New Biosample**

Controlled Lookup:	Please refer to Appendix A - lk_t0_event.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_t0_event
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.Image_Histology.txt : Study Time T0 Event Specify	
Description:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Required:	No
Lookup:	None
Comment:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Database Table:	biosample
Database Column:	study_time_t0_event_specify
Database Column Type:	varchar(50)

21.4. Experiment Meta Data Columns

The Experiment Meta Data Columns include the columns for the combined entity Experiment.

Experiment Meta Data Column experimentSamples.Image_Histology.txt : Experiment ID	
Description:	The experiment identifier must be stored in ImmPort or in the experiments.txt template. The experiment serves as the parent entity to bind assay results of a similar type together.
Required:	Yes
Lookup:	None
Comment:	Please enter either a experiment user defined ID or ImmPort accession.

Database Table:	experiment
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Experiment Meta Data Column experimentSamples.Image_Histology.txt : Protocol ID(s)	
Description:	Please enter either a protocol user defined ID or ImmPort accession for a protocol that describes how the sample was derived and prepared. One or more identifiers can be entered per sample. Separate identifiers by semicolon (;).
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	Please enter either a protocol user defined ID or ImmPort accession. This column is required when either the experiment or biological sample are new.
Database Table:	experiment_2_protocol
Database Column:	protocol_accession
Database Column Type:	varchar(15)

Experiment Meta Data Column experimentSamples.Image_Histology.txt : Experiment Name	
Description:	The experiment name is a display name that is available when the data is shared, but it is not referenced by other data.
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	The experiment name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample

Database Column:	name
Database Column Type:	varchar(500)

Experiment Meta Data Column experimentSamples.Image_Histology.txt : Experiment Description	
Description:	The experiment description is used to describe details of the experiment not captured in other columns.
Required:	No
Lookup:	None
Comment:	The experiment description is used to describe details of the experiment not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Experiment Meta Data Column experimentSamples.Image_Histology.txt : Measurement Technique	
Description:	The measurement technique describes the assay method.
Conditional Required:	Yes for **New Experiment**
Controlled Lookup:	Please refer to Appendix A - lk_exp_measurement_tech.
Comment:	Choose from a drop down list.
Database Table:	experiment
Database Column:	measurement_technique
Database Column Type:	varchar(50)

22. **experimentSamples.KIR.txt**

The KIR experiment sample template defines and annotates the assay results for a sample by linking sample, experiment, and results together. The experiment samples template allows you to describe to ImmPort new experiments and biological samples or link experiments and biological samples stored in ImmPort with assay results. There is considerable flexibility in linking ImmPort content with new content in the templates and there are some general guidelines to remember. All of the experiment sample IDs in the template must always be unique in the template and must not already be stored in ImmPort. The biological sample and the experiment in the template may be new or they both may be new. If the biological sample or the experiment are new, then you must complete the required columns to describe them. The column header names in the templates indicate to what is being described and the '.xls' spreadsheet versions use color codes to indicate what is being described.

22.1. ID Meta Data Column

The ID Meta Data Columns include the ID columns that are referenced by more than one entity in the experiment sample template (for example, experiments and biological samples reference study IDs). The value entered the study ID is linked to experiment and biological sample. The experiment sample ID is the primary ID and can be defined only once and not re-used. The biological sample ID and experiment ID can be pre-defined or defined once and re-used within the template.

ID Meta Data Column experimentSamples.KIR.txt : Study ID	
Description:	An experiment and biological sample may be linked to a single study.
Conditional Required:	Yes for **New Experiment And Biosample**
Lookup:	None
Comment:	Please enter either a study user defined ID or ImmPort accession. This column is only required when both the experiment and biological sample are new.
Database Table:	biosample And experiment
Database Column:	study_accession
Database Column Type:	varchar(15)

22.2. Expsample Meta Data Columns

The Expsample Meta Data Columns include the columns for the combined entity Expsample.

Expsample Meta Data Column experimentSamples.KIR.txt : Expsample ID

Description:	The experiment sample user defined ID is an identifier chosen by the data provider to refer to this sample. This ID may be referenced by other data records (e.g. assay results). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	expsample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Expsample Meta Data Column experimentSamples.KIR.txt : Reagent ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The reagent identifier(s) must be stored in ImmPort or in the reagents.txt template.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Please enter either an assay reagent user defined ID or ImmPort accession.
Database Table:	expsample_2_reagent
Database Column:	reagent_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.KIR.txt : Treatment ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The treatment identifier(s) must be stored in ImmPort or in the treatments.txt template.
Conditional Required:	Yes for **New Expsample**

Lookup:	None
Comment:	Please enter either a treatment user defined ID or ImmPort accession.
Database Table:	expsample_2_treatment
Database Column:	treatment_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.KIR.txt : Expsample Name	
Description:	The experiment sample name is a display name that is available when the data is shared, but it is not referenced by other data records.
Required:	No
Lookup:	None
Comment:	The experiment sample name is an alternate identifier that is visible when the experiment sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Expsample Meta Data Column experimentSamples.KIR.txt : Expsample Description	
Description:	Describe important characteristics of the sample being assayed.
Required:	No
Lookup:	None
Comment:	Describe important characteristics of the sample being assayed.
Database Table:	expsample
Database Column:	description

Database Column Type:	varchar(4000)

Expsample Meta Data Column experimentSamples.KIR.txt : Additional Result File Names	
Description:	Separate file names by a semi-colon (;). The file size name limit is 240 characters.
Required:	No
Lookup:	None
Comment:	Please enter additional result file(s) to link to the experiment sample. The file size name limit is 240 characters.

Expsample Meta Data Column experimentSamples.KIR.txt : ImmPort Template?	
Description:	If the result file is an ImmPort results template (strongly recommended by NIAID DAIT), choose 'Yes' from the drop down list and do not include a file name in the "Result File Name" column. If the result file is not an ImmPort results template, choose 'No' from the drop down list and include a file name in the "Result File Name" column.
Conditional Required:	Yes for **New Expsample**
Controlled Lookup:	Please refer to Appendix A - lk_yes_no.
Comment:	If the result file is an ImmPort results template (strongly recommended by NIAID DAIT), choose 'Yes' from the drop down list and do not include a file name in the "Result File Name" column. If the result file is not an ImmPort results template, choose 'No' from the drop down list and include a file name in the "Result File Name" column.

Expsample Meta Data Column experimentSamples.KIR.txt : Result File Name	
Description:	Completing this column is conditional upon whether the "ImmPort Template?" column value is set to "Yes" or "No". If the "ImmPort Template?" column value is set to "Yes", do not enter a file name in the "Result File Name" column. If the "ImmPort Template?" column value is set to "No", enter a file name in the "Result File Name" column. ImmPort supports results templates for many of the commonly used immunological assay methods. These templates facilitate the sharing and re-use of results data in a standard format. The file size name limit is 240 characters.
Required:	No
Lookup:	None

Comment:	Please use the ImmPort template for this assay result (as opposed to custom file formats) to standardize the format of the data when it is shared. If you use the ImmPort template (strongly recommended by NIAID DAIT), do not enter the template name in this column and set the "ImmPort Template?" column value to "Yes". If you do not use the ImmPort template, enter the file name (including file extension) that contains assay results for the experiment sample and set the "ImmPort Template?" column value to "No". The file size name limit is 240 characters.

22.3. Biosample Meta Data Columns

The Biosample Meta Data Columns include the columns for the combined entity Biosample.

Biosample Meta Data Column experimentSamples.KIR.txt : Biosample ID	
Description:	The biological sample user defined ID is an identifier chosen by the data provider to refer to a sample. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded. Please enter either a biological sample user defined ID or ImmPort accession. A single biological sample may be linked to an experiment sample.
Database Table:	biosample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Biosample Meta Data Column experimentSamples.KIR.txt : Subject ID	
Description:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived. A single subject record is permitted.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived.

Database Table:	biosample
Database Column:	subject_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.KIR.txt : Planned Visit ID	
Description:	The link to a study's planned visit provides temporal context for a sample's derivation from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a study's planned visit user defined ID or ImmPort accession.
Database Table:	biosample
Database Column:	planned_visit_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.KIR.txt : Type	
Description:	The sample types are adopted from Uberon, Cell and CHEBI ontologies.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_sample_type.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	type

Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.KIR.txt : Subtype	
Description:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Required:	No
Lookup:	None
Comment:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Database Table:	biosample
Database Column:	subtype
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.KIR.txt : Biosample Name	
Description:	The biological sample name is a display name that is available when the data is shared, but it is not referenced by other data.
Required:	No
Lookup:	None
Comment:	The biological sample name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Biosample Meta Data Column experimentSamples.KIR.txt : Biosample Description	
Description:	The biological sample description is used to describe details of the sample not captured in other columns.
Required:	No
Lookup:	None
Comment:	The biological sample description is used to describe details of the sample not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Biosample Meta Data Column experimentSamples.KIR.txt : Study Time Collected	
Description:	Study time collected describes the time value for when a sample was derived from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter a number.
Database Table:	biosample
Database Column:	study_time_collected
Database Column Type:	float

Biosample Meta Data Column experimentSamples.KIR.txt : Study Time Collected Unit	
Description:	The time units are standard terms recommended by the HIPC Standards group.
Conditional Required:	Yes for **New Biosample**

Controlled Lookup:	Please refer to Appendix A - lk_time_unit.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_collected_unit
Database Column Type:	varchar(25)

Biosample Meta Data Column experimentSamples.KIR.txt : Study Time T0 Event	
Description:	The time zero event refers to the study milestone upon which time is based.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_t0_event.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_t0_event
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.KIR.txt : Study Time T0 Event Specify	
Description:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Required:	No
Lookup:	None
Comment:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Database Table:	biosample

Database Column:	study_time_t0_event_specify
Database Column Type:	varchar(50)

22.4. Experiment Meta Data Columns

The Experiment Meta Data Columns include the columns for the combined entity Experiment.

Experiment Meta Data Column experimentSamples.KIR.txt : Experiment ID	
Description:	The experiment identifier must be stored in ImmPort or in the experiments.txt template. The experiment serves as the parent entity to bind assay results of a similar type together.
Required:	Yes
Lookup:	None
Comment:	Please enter either a experiment user defined ID or ImmPort accession.
Database Table:	experiment
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Experiment Meta Data Column experimentSamples.KIR.txt : Protocol ID(s)	
Description:	Please enter either a protocol user defined ID or ImmPort accession for a protocol that describes how the sample was derived and prepared. One or more identifiers can be entered per sample. Separate identifiers by semicolon (;).
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	Please enter either a protocol user defined ID or ImmPort accession. This column is required when either the experiment or biological sample are new.
Database Table:	experiment_2_protocol

Database Column:	protocol_accession
Database Column Type:	varchar(15)

Experiment Meta Data Column experimentSamples.KIR.txt : Experiment Name	
Description:	The experiment name is a display name that is available when the data is shared, but it is not referenced by other data.
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	The experiment name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(500)

Experiment Meta Data Column experimentSamples.KIR.txt : Experiment Description	
Description:	The experiment description is used to describe details of the experiment not captured in other columns.
Required:	No
Lookup:	None
Comment:	The experiment description is used to describe details of the experiment not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Experiment Meta Data Column experimentSamples.KIR.txt : Measurement Technique	
Description:	The measurement technique describes the assay method.
Conditional Required:	Yes for **New Experiment**
Controlled Lookup:	Please refer to Appendix A - lk_exp_measurement_tech.
Comment:	Choose from a drop down list.
Database Table:	experiment
Database Column:	measurement_technique
Database Column Type:	varchar(50)

23. **experimentSamples.Mass_Spectrometry_Metabolomics.txt**

The Mass Spectrometry experiment sample template for Metabolomics defines and annotates the assay results for a sample by linking sample, experiment, and resultstogether. The experiment samples template allows you to describe to ImmPort new experiments and biological samples or link experiments and biological samples stored in ImmPort with assay results. There is considerable flexibility in linking ImmPort content with new content in the templates and there are some general guidelines to remember. All of the experiment sample IDs in the template must always be unique in the template and must not already be stored in ImmPort. The biological sample and the experiment in the template may be new or they both may be new. If the biological sample or the experiment are new, then you must complete the required columns to describe them. The column header names in the templates indicate to what is being described and the '.xls' spreadsheet versions use color codes to indicate what is being described.

23.1. ID Meta Data Column

The ID Meta Data Columns include the ID columns that are referenced by more than one entity in the experiment sample template (for example, experiments and biological samples reference study IDs). The value entered the study ID is linked to experiment and biological sample. The experiment sample ID is the primary ID and can be defined only once and not re-used. The biological sample ID and experiment ID can be pre-defined or defined once and re-used within the template.

ID Meta Data Column experimentSamples.Mass_Spectrometry_Metabolomics.txt : Study ID	
Description:	An experiment and biological sample may be linked to a single study.
Conditional Required:	Yes for **New Experiment And Biosample**
Lookup:	None
Comment:	Please enter either a study user defined ID or ImmPort accession. This column is only required when both the experiment and biological sample are new.
Database Table:	biosample And experiment
Database Column:	study_accession
Database Column Type:	varchar(15)

23.2. Expsample Meta Data Columns

The Expsample Meta Data Columns include the columns for the combined entity Expsample.

Expsample Meta Data Column experimentSamples.Mass_Spectrometry_Metabolomics.txt : Expsample ID	
Description:	The experiment sample user defined ID is an identifier chosen by the data provider to refer to this sample. This ID may be referenced by other data records (e.g. assay results). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	expsample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Expsample Meta Data Column experimentSamples.Mass_Spectrometry_Metabolomics.txt : Reagent ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The reagent identifier(s) must be stored in ImmPort or in the reagents.txt template.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Please enter either an assay reagent user defined ID or ImmPort accession.
Database Table:	expsample_2_reagent
Database Column:	reagent_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.Mass_Spectrometry_Metabolomics.txt : Treatment ID(s)

Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The treatment identifier(s) must be stored in ImmPort or in the treatments.txt template.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Please enter either a treatment user defined ID or ImmPort accession.
Database Table:	expsample_2_treatment
Database Column:	treatment_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.Mass_Spectrometry_Metabolomics.txt : Expsample Name	
Description:	The experiment sample name is a display name that is available when the data is shared, but it is not referenced by other data records.
Required:	No
Lookup:	None
Comment:	The experiment sample name is an alternate identifier that is visible when the experiment sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Expsample Meta Data Column experimentSamples.Mass_Spectrometry_Metabolomics.txt : Expsample Description	
Description:	Describe important characteristics of the sample being assayed.
Required:	No

Lookup:	None
Comment:	Describe important characteristics of the sample being assayed.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Expsample Meta Data Column experimentSamples.Mass_Spectrometry_Metabolomics.txt : Additional Result File Names	
Description:	Separate file names by a semi-colon (;). The file size name limit is 240 characters.
Required:	No
Lookup:	None
Comment:	Please enter additional result file(s) to link to the experiment sample. The file size name limit is 240 characters.

Expsample Meta Data Column experimentSamples.Mass_Spectrometry_Metabolomics.txt : ImmPort Template?	
Description:	If the result file is an ImmPort results template (strongly recommended by NIAID DAIT), choose 'Yes' from the drop down list and do not include a file name in the "Result File Name" column. If the result file is not an ImmPort results template, choose 'No' from the drop down list and include a file name in the "Result File Name" column.
Conditional Required:	Yes for **New Expsample**
Controlled Lookup:	Please refer to Appendix A - lk_yes_no.
Comment:	If the result file is an ImmPort results template (strongly recommended by NIAID DAIT), choose 'Yes' from the drop down list and do not include a file name in the "Result File Name" column. If the result file is not an ImmPort results template, choose 'No' from the drop down list and include a file name in the "Result File Name" column.

Expsample Meta Data Column experimentSamples.Mass_Spectrometry_Metabolomics.txt : Result File Name

Description:	Completing this column is conditional upon whether the "ImmPort Template?" column value is set to "Yes" or "No". If the "ImmPort Template?" column value is set to "Yes", do not enter a file name in the "Result File Name" column. If the "ImmPort Template?" column value is set to "No", enter a file name in the "Result File Name" column. ImmPort supports results templates for many of the commonly used immunological assay methods. These templates facilitate the sharing and re-use of results data in a standard format. The standard parsable template file for this template is Mass_Spectrometry_Metabolomic_Results.txt. The file size name limit is 240 characters.
Required:	No
Lookup:	None
Comment:	Please use the ImmPort template for this assay result (as opposed to custom file formats) to standardize the format of the data when it is shared. If you use the ImmPort template (strongly recommended by NIAID DAIT), do not enter the template name in this column and set the "ImmPort Template?" column value to "Yes". If you DO NOT use the ImmPort template, enter the file name (including file extension) that contains assay results for the experiment sample and set the "ImmPort Template?" column value to "No". The standard parsable template file for this template is Mass_Spectrometry_Metabolomic_Results.txt. The file size name limit is 240 characters.

Expsample Meta Data Column experimentSamples.Mass_Spectrometry_Metabolomics.txt : Repository Name	
Description:	Metabolite Mass spectrometry results are expected to be deposited in an external repository. Please choose one these repositorys name from the list.
Required:	No
Controlled Lookup:	Please refer to Appendix A - lk_public_repository.
Comment:	Metabolite Mass spectrometry results are expected to be deposited in an external repository. Please choose one these repositorys name from the list.
Database Table:	expsample_public_repository
Database Column:	repository_name
Database Column Type:	varchar(50)

Expsample Meta Data Column experimentSamples.Mass_Spectrometry_Metabolomics.txt : Repository Accession

Description:	The public repository accession should be the most granular or highest resolution provided (e.g. sample level accession, not sample group accession).
Required:	No
Lookup:	None
Comment:	Enter the accession that links to the assay result file(s).
Database Table:	expsample_public_repository
Database Column:	repository_accession
Database Column Type:	varchar(20)

23.3. Biosample Meta Data Columns

The Biosample Meta Data Columns include the columns for the combined entity Biosample.

Biosample Meta Data Column experimentSamples.Mass_Spectrometry_Metabolomics.txt : Biosample ID	
Description:	The biological sample user defined ID is an identifier chosen by the data provider to refer to a sample. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded. Please enter either a biological sample user defined ID or ImmPort accession. A single biological sample may be linked to an experiment sample.
Database Table:	biosample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Biosample Meta Data Column experimentSamples.Mass_Spectrometry_Metabolomics.txt : Subject ID

Description:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived. A single subject record is permitted.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived.
Database Table:	biosample
Database Column:	subject_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.Mass_Spectrometry_Metabolomics.txt : Planned Visit ID	
Description:	The link to a study's planned visit provides temporal context for a sample's derivation from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a study's planned visit user defined ID or ImmPort accession.
Database Table:	biosample
Database Column:	planned_visit_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.Mass_Spectrometry_Metabolomics.txt : Type	
Description:	The sample types are adopted from Uberon, Cell and CHEBI ontologies.
Conditional Required:	Yes for **New Biosample**

Controlled Lookup:	Please refer to Appendix A - lk_sample_type.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	type
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.Mass_Spectrometry_Metabolomics.txt : Subtype	
Description:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Required:	No
Lookup:	None
Comment:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Database Table:	biosample
Database Column:	subtype
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.Mass_Spectrometry_Metabolomics.txt : Biosample Name	
Description:	The biological sample name is a display name that is available when the data is shared, but it is not referenced by other data.
Required:	No
Lookup:	None
Comment:	The biological sample name is an alternate identifier that is visible when the sample is shared.

Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Biosample Meta Data Column experimentSamples.Mass_Spectrometry_Metabolomics.txt : Biosample Description	
Description:	The biological sample description is used to describe details of the sample not captured in other columns.
Required:	No
Lookup:	None
Comment:	The biological sample description is used to describe details of the sample not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Biosample Meta Data Column experimentSamples.Mass_Spectrometry_Metabolomics.txt : Study Time Collected	
Description:	Study time collected describes the time value for when a sample was derived from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter a number.
Database Table:	biosample
Database Column:	study_time_collected

Database Column Type:	float

Biosample Meta Data Column experimentSamples.Mass_Spectrometry_Metabolomics.txt : Study Time Collected Unit	
Description:	The time units are standard terms recommended by the HIPC Standards group.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_time_unit.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_collected_unit
Database Column Type:	varchar(25)

Biosample Meta Data Column experimentSamples.Mass_Spectrometry_Metabolomics.txt : Study Time T0 Event	
Description:	The time zero event refers to the study milestone upon which time is based.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_t0_event.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_t0_event
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.Mass_Spectrometry_Metabolomics.txt : Study Time T0 Event Specify	
Description:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Required:	No
Lookup:	None
Comment:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Database Table:	biosample
Database Column:	study_time_t0_event_specify
Database Column Type:	varchar(50)

23.4. Experiment Meta Data Columns

The Experiment Meta Data Columns include the columns for the combined entity Experiment.

Experiment Meta Data Column experimentSamples.Mass_Spectrometry_Metabolomics.txt : Experiment ID	
Description:	The experiment identifier must be stored in ImmPort or in the experiments.txt template. The experiment serves as the parent entity to bind assay results of a similar type together.
Required:	Yes
Lookup:	None
Comment:	Please enter either a experiment user defined ID or ImmPort accession.
Database Table:	experiment
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Experiment Meta Data Column experimentSamples.Mass_Spectrometry_Metabolomics.txt : Protocol ID(s)

Description:	Please enter either a protocol user defined ID or ImmPort accession for a protocol that describes how the sample was derived and prepared. One or more identifiers can be entered per sample. Separate identifiers by semicolon (;).
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	Please enter either a protocol user defined ID or ImmPort accession. This column is required when either the experiment or biological sample are new.
Database Table:	experiment_2_protocol
Database Column:	protocol_accession
Database Column Type:	varchar(15)

Experiment Meta Data Column experimentSamples.Mass_Spectrometry_Metabolomics.txt : Experiment Name	
Description:	The experiment name is a display name that is available when the data is shared, but it is not referenced by other data.
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	The experiment name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(500)

Experiment Meta Data Column experimentSamples.Mass_Spectrometry_Metabolomics.txt : Experiment Description	
Description:	The experiment description is used to describe details of the experiment not captured in other columns.

Required:	No
Lookup:	None
Comment:	The experiment description is used to describe details of the experiment not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Experiment Meta Data Column experimentSamples.Mass_Spectrometry_Metabolomics.txt : Measurement Technique	
Description:	The measurement technique describes the assay method.
Conditional Required:	Yes for **New Experiment**
Controlled Lookup:	Please refer to Appendix A - lk_exp_measurement_tech.
Comment:	Choose from a drop down list.
Database Table:	experiment
Database Column:	measurement_technique
Database Column Type:	varchar(50)

24. **experimentSamples.Mass_Spectrometry_Proteomics.txt**

The Mass Spectrometry experiment sample template defines and annotates the assay results for a sample by linking sample, experiment, and resultstogether. The experiment samples template allows you to describe to ImmPort new experiments and biological samples or link experiments and biological samples stored in ImmPort with assay results. There is considerable flexibility in linking ImmPort content with new content in the templates and there are some general guidelines to remember. All of the experiment sample IDs in the template must always be unique in the template and must not already be stored in ImmPort. The biological sample and the experiment in the template may be new or they both may be new. If the biological sample or the experiment are new, then you must complete the required columns to describe them. The column header names in the templates indicate to what is being described and the '.xls' spreadsheet versions use color codes to indicate what is being described.

24.1. ID Meta Data Column

The ID Meta Data Columns include the ID columns that are referenced by more than one entity in the experiment sample template (for example, experiments and biological samples reference study IDs). The value entered the study ID is linked to experiment and biological sample. The experiment sample ID is the primary ID and can be defined only once and not re-used. The biological sample ID and experiment ID can be pre-defined or defined once and re-used within the template.

ID Meta Data Column experimentSamples.Mass_Spectrometry_Proteomics.txt : Study ID	
Description:	An experiment and biological sample may be linked to a single study.
Conditional Required:	Yes for **New Experiment And Biosample**
Lookup:	None
Comment:	Please enter either a study user defined ID or ImmPort accession. This column is only required when both the experiment and biological sample are new.
Database Table:	biosample And experiment
Database Column:	study_accession
Database Column Type:	varchar(15)

24.2. Expsample Meta Data Columns

The Expsample Meta Data Columns include the columns for the combined entity Expsample.

Expsample Meta Data Column experimentSamples.Mass_Spectrometry_Proteomics.txt : Expsample ID	
Description:	The experiment sample user defined ID is an identifier chosen by the data provider to refer to this sample. This ID may be referenced by other data records (e.g. assay results). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	expsample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Expsample Meta Data Column experimentSamples.Mass_Spectrometry_Proteomics.txt : Reagent ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The reagent identifier(s) must be stored in ImmPort or in the reagents.txt template.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Please enter either an assay reagent user defined ID or ImmPort accession.
Database Table:	expsample_2_reagent
Database Column:	reagent_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.Mass_Spectrometry_Proteomics.txt : Treatment ID(s)

Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The treatment identifier(s) must be stored in ImmPort or in the treatments.txt template.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Please enter either a treatment user defined ID or ImmPort accession.
Database Table:	expsample_2_treatment
Database Column:	treatment_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.Mass_Spectrometry_Proteomics.txt : Expsample Name	
Description:	The experiment sample name is a display name that is available when the data is shared, but it is not referenced by other data records.
Required:	No
Lookup:	None
Comment:	The experiment sample name is an alternate identifier that is visible when the experiment sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Expsample Meta Data Column experimentSamples.Mass_Spectrometry_Proteomics.txt : Expsample Description	
Description:	Describe important characteristics of the sample being assayed.
Required:	No

Lookup:	None
Comment:	Describe important characteristics of the sample being assayed.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Expsample Meta Data Column experimentSamples.Mass_Spectrometry_Proteomics.txt : Additional Result File Names	
Description:	Separate file names by a semi-colon (;). The file size name limit is 240 characters.
Required:	No
Lookup:	None
Comment:	Please enter additional result file(s) to link to the experiment sample. The file size name limit is 240 characters.

Expsample Meta Data Column experimentSamples.Mass_Spectrometry_Proteomics.txt : ImmPort Template?	
Description:	If the result file is an ImmPort results template (strongly recommended by NIAID DAIT), choose 'Yes' from the drop down list and do not include a file name in the "Result File Name" column. If the result file is not an ImmPort results template, choose 'No' from the drop down list and include a file name in the "Result File Name" column.
Conditional Required:	Yes for **New Expsample**
Controlled Lookup:	Please refer to Appendix A - lk_yes_no.
Comment:	If the result file is an ImmPort results template (strongly recommended by NIAID DAIT), choose 'Yes' from the drop down list and do not include a file name in the "Result File Name" column. If the result file is not an ImmPort results template, choose 'No' from the drop down list and include a file name in the "Result File Name" column.

Expsample Meta Data Column experimentSamples.Mass_Spectrometry_Proteomics.txt : Result File Name

Description:	Completing this column is conditional upon whether the "ImmPort Template?" column value is set to "Yes" or "No". If the "ImmPort Template?" column value is set to "Yes", do not enter a file name in the "Result File Name" column. If the "ImmPort Template?" column value is set to "No", enter a file name in the "Result File Name" column. ImmPort supports results templates for many of the commonly used immunological assay methods. These templates facilitate the sharing and re-use of results data in a standard format. The standard parsable template file for this template is Mass_Spectrometry_Proteomic_Results.txt. The file size name limit is 240 characters.
Required:	No
Lookup:	None
Comment:	Please use the ImmPort template for this assay result (as opposed to custom file formats) to standardize the format of the data when it is shared. If you use the ImmPort template (strongly recommended by NIAID DAIT), do not enter the template name in this column and set the "ImmPort Template?" column value to "Yes". If you DO NOT use the ImmPort template, enter the file name (including file extension) that contains assay results for the experiment sample and set the "ImmPort Template?" column value to "No". The standard parsable template file for this template is Mass_Spectrometry_Proteomic_Results.txt. The file size name limit is 240 characters.

Expsample Meta Data Column experimentSamples.Mass_Spectrometry_Proteomics.txt : Protein Sequence Database File Name	
Description:	Protein sequence file in fasta sequence format.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Protein sequence file in fasta sequence format.

Expsample Meta Data Column experimentSamples.Mass_Spectrometry_Proteomics.txt : Repository Name	
Description:	ImmPort expects Protein Mass spectrometry results are expected to be deposited in PRIDE or MassIVE. Please choose one these repositorys name from the list.
Required:	No
Controlled Lookup:	Please refer to Appendix A - lk_public_repository.
Comment:	Protein Mass spectrometry results are expected to be deposited in PRIDE or MassIVE. Please choose one these repositorys name from the list.

Database Table:	expsample_public_repository
Database Column:	repository_name
Database Column Type:	varchar(50)

Expsample Meta Data Column experimentSamples.Mass_Spectrometry_Proteomics.txt : Repository Accession	
Description:	The public repository accession should be the most granular or highest resolution provided (e.g. sample level accession, not sample group accession).
Required:	No
Lookup:	None
Comment:	Enter the accession that links to the assay result file(s).
Database Table:	expsample_public_repository
Database Column:	repository_accession
Database Column Type:	varchar(20)

24.3. Biosample Meta Data Columns

The Biosample Meta Data Columns include the columns for the combined entity Biosample.

Biosample Meta Data Column experimentSamples.Mass_Spectrometry_Proteomics.txt : Biosample ID	
Description:	The biological sample user defined ID is an identifier chosen by the data provider to refer to a sample. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded. Please enter either a biological sample user defined ID or ImmPort accession. A single biological sample may be linked to an experiment sample.

Database Table:	biosample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Biosample Meta Data Column experimentSamples.Mass_Spectrometry_Proteomics.txt : Subject ID	
Description:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived. A single subject record is permitted.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived.
Database Table:	biosample
Database Column:	subject_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.Mass_Spectrometry_Proteomics.txt : Planned Visit ID	
Description:	The link to a study's planned visit provides temporal context for a sample's derivation from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a study's planned visit user defined ID or ImmPort accession.
Database Table:	biosample

Database Column:	planned_visit_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.Mass_Spectrometry_Proteomics.txt : Type	
Description:	The sample types are adopted from Uberon, Cell and CHEBI ontologies.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_sample_type.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	type
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.Mass_Spectrometry_Proteomics.txt : Subtype	
Description:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Required:	No
Lookup:	None
Comment:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Database Table:	biosample
Database Column:	subtype

Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.Mass_Spectrometry_Proteomics.txt : Biosample Name	
Description:	The biological sample name is a display name that is available when the data is shared, but it is not referenced by other data.
Required:	No
Lookup:	None
Comment:	The biological sample name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Biosample Meta Data Column experimentSamples.Mass_Spectrometry_Proteomics.txt : Biosample Description	
Description:	The biological sample description is used to describe details of the sample not captured in other columns.
Required:	No
Lookup:	None
Comment:	The biological sample description is used to describe details of the sample not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Biosample Meta Data Column experimentSamples.Mass_Spectrometry_Proteomics.txt : Study Time Collected	
Description:	Study time collected describes the time value for when a sample was derived from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter a number.
Database Table:	biosample
Database Column:	study_time_collected
Database Column Type:	float

Biosample Meta Data Column experimentSamples.Mass_Spectrometry_Proteomics.txt : Study Time Collected Unit	
Description:	The time units are standard terms recommended by the HIPC Standards group.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_time_unit.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_collected_unit
Database Column Type:	varchar(25)

Biosample Meta Data Column experimentSamples.Mass_Spectrometry_Proteomics.txt : Study Time T0 Event	
Description:	The time zero event refers to the study milestone upon which time is based.

Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_t0_event.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_t0_event
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.Mass_Spectrometry_Proteomics.txt : Study Time T0 Event Specify	
Description:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Required:	No
Lookup:	None
Comment:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Database Table:	biosample
Database Column:	study_time_t0_event_specify
Database Column Type:	varchar(50)

24.4. Experiment Meta Data Columns

The Experiment Meta Data Columns include the columns for the combined entity Experiment.

Experiment Meta Data Column experimentSamples.Mass_Spectrometry_Proteomics.txt : Experiment ID	
Description:	The experiment identifier must be stored in ImmPort or in the experiments.txt template. The experiment serves as the parent entity to bind assay results of a similar type together.
Required:	Yes

Lookup:	None
Comment:	Please enter either a experiment user defined ID or ImmPort accession.
Database Table:	experiment
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Experiment Meta Data Column experimentSamples.Mass_Spectrometry_Proteomics.txt : Protocol ID(s)	
Description:	Please enter either a protocol user defined ID or ImmPort accession for a protocol that describes how the sample was derived and prepared. One or more identifiers can be entered per sample. Separate identifiers by semicolon (;).
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	Please enter either a protocol user defined ID or ImmPort accession. This column is required when either the experiment or biological sample are new.
Database Table:	experiment_2_protocol
Database Column:	protocol_accession
Database Column Type:	varchar(15)

Experiment Meta Data Column experimentSamples.Mass_Spectrometry_Proteomics.txt : Experiment Name	
Description:	The experiment name is a display name that is available when the data is shared, but it is not referenced by other data.
Conditional Required:	Yes for **New Experiment**
Lookup:	None

Comment:	The experiment name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(500)

Experiment Meta Data Column experimentSamples.Mass_Spectrometry_Proteomics.txt : Experiment Description	
Description:	The experiment description is used to describe details of the experiment not captured in other columns.
Required:	No
Lookup:	None
Comment:	The experiment description is used to describe details of the experiment not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Experiment Meta Data Column experimentSamples.Mass_Spectrometry_Proteomics.txt : Measurement Technique	
Description:	The measurement technique describes the assay method.
Conditional Required:	Yes for **New Experiment**
Controlled Lookup:	Please refer to Appendix A - lk_exp_measurement_tech.
Comment:	Choose from a drop down list.
Database Table:	experiment

Database Column:	measurement_technique
Database Column Type:	varchar(50)

25. **experimentSamples.MBAA.txt**

The MBAA experiment sample template defines and annotates the assay results for a sample by linking sample, experiment, and results together. The experiment samples template allows you to describe to ImmPort new experiments and biological samples or link experiments and biological samples stored in ImmPort with assay results. There is considerable flexibility in linking ImmPort content with new content in the templates and there are some general guidelines to remember. All of the experiment sample IDs in the template must always be unique in the template and must not already be stored in ImmPort. The biological sample and the experiment in the template may be new or they both may be new. If the biological sample or the experiment are new, then you must complete the required columns to describe them. The column header names in the templates indicate to what is being described and the '.xls' spreadsheet versions use color codes to indicate what is being described.

25.1. ID Meta Data Column

The ID Meta Data Columns include the ID columns that are referenced by more than one entity in the experiment sample template (for example, experiments and biological samples reference study IDs). The value entered the study ID is linked to experiment and biological sample. The experiment sample ID is the primary ID and can be defined only once and not re-used. The biological sample ID and experiment ID can be pre-defined or defined once and re-used within the template.

ID Meta Data Column experimentSamples.MBAA.txt : Study ID	
Description:	An experiment and biological sample may be linked to a single study.
Conditional Required:	Yes for **New Experiment And Biosample**
Lookup:	None
Comment:	Please enter either a study user defined ID or ImmPort accession. This column is only required when both the experiment and biological sample are new.
Database Table:	biosample And experiment
Database Column:	study_accession
Database Column Type:	varchar(15)

25.2. Expsample Meta Data Columns

The Expsample Meta Data Columns include the columns for the combined entity Expsample.

Expsample Meta Data Column experimentSamples.MBAA.txt : Expsample ID

Description:	The experiment sample user defined ID is an identifier chosen by the data provider to refer to this sample. This ID may be referenced by other data records (e.g. assay results). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	expsample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Expsample Meta Data Column experimentSamples.MBAA.txt : Reagent ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The reagent identifier(s) must be stored in ImmPort or in the reagents.txt template.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Please enter either an assay reagent user defined ID or ImmPort accession.
Database Table:	expsample_2_reagent
Database Column:	reagent_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.MBAA.txt : Treatment ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The treatment identifier(s) must be stored in ImmPort or in the treatments.txt template.
Conditional Required:	Yes for **New Expsample**

Lookup:	None
Comment:	Please enter either a treatment user defined ID or ImmPort accession.
Database Table:	expsample_2_treatment
Database Column:	treatment_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.MBAA.txt : Expsample Name	
Description:	The experiment sample name is a display name that is available when the data is shared, but it is not referenced by other data records.
Required:	No
Lookup:	None
Comment:	The experiment sample name is an alternate identifier that is visible when the experiment sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Expsample Meta Data Column experimentSamples.MBAA.txt : Expsample Description	
Description:	Describe important characteristics of the sample being assayed.
Required:	No
Lookup:	None
Comment:	Describe important characteristics of the sample being assayed.
Database Table:	expsample
Database Column:	description

Database Column Type:	varchar(4000)

Expsample Meta Data Column experimentSamples.MBAA.txt : Additional Result File Names	
Description:	Separate file names by a semi-colon (;). The file size name limit is 240 characters.
Required:	No
Lookup:	None
Comment:	Please enter additional result file(s) to link to the experiment sample. The file size name limit is 240 characters.

Expsample Meta Data Column experimentSamples.MBAA.txt : ImmPort Template?	
Description:	If the result file is an ImmPort results template (strongly recommended by NIAID DAIT), choose 'Yes' from the drop down list and do not include a file name in the "Result File Name" column. If the result file is not an ImmPort results template, choose 'No' from the drop down list and include a file name in the "Result File Name" column.
Conditional Required:	Yes for **New Expsample**
Controlled Lookup:	Please refer to Appendix A - lk_yes_no.
Comment:	If the result file is an ImmPort results template (strongly recommended by NIAID DAIT), choose 'Yes' from the drop down list and do not include a file name in the "Result File Name" column. If the result file is not an ImmPort results template, choose 'No' from the drop down list and include a file name in the "Result File Name" column.

Expsample Meta Data Column experimentSamples.MBAA.txt : Result File Name	
Description:	Completing this column is conditional upon whether the "ImmPort Template?" column value is set to "Yes" or "No". If the "ImmPort Template?" column value is set to "Yes", do not enter a file name in the "Result File Name" column. If the "ImmPort Template?" column value is set to "No", enter a file name in the "Result File Name" column. ImmPort supports results templates for many of the commonly used immunological assay methods. These templates facilitate the sharing and re-use of results data in a standard format. The file size name limit is 240 characters.
Required:	No
Lookup:	None

Comment:	Please use the ImmPort template for this assay result (as opposed to custom file formats) to standardize the format of the data when it is shared. If you use the ImmPort template (strongly recommended by NIAID DAIT), do not enter the template name in this column and set the "ImmPort Template?" column value to "Yes". If you do not use the ImmPort template, enter the file name (including file extension) that contains assay results for the experiment sample and set the "ImmPort Template?" column value to "No". The file size name limit is 240 characters.

Expsample Meta Data Column experimentSamples.MBAA.txt : Assay ID	
Description:	The assay ID represents the plate or array ID where standard curves, control samples, and experiment samples were collected and assayed. This ID will be used to link standard curves, control samples, and experiment samples results.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	The assay ID represents the plate or array ID where standard curves, control samples, and experiment samples were collected and assayed. This ID will be used to link standard curves, control samples, and experiment samples results.
Database Table:	expsample_mbaa_detail
Database Column:	assay_id
Database Column Type:	varchar(100)

Expsample Meta Data Column experimentSamples.MBAA.txt : Dilution Factor	
Description:	The dilution factor indicates how much a sample was diluted before it was assayed.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Please enter a number.
Database Table:	expsample_mbaa_detail

Database Column:	dilution_factor
Database Column Type:	varchar(100)

Expsample Meta Data Column experimentSamples.MBAA.txt : Assay Group ID	
Description:	The assay group ID represents a collection of plates or arrays. This ID may be used to link collections of standard curves, control samples, and experiment samples results.
Required:	No
Lookup:	None
Comment:	The assay group ID represents a collection of plates or arrays. This ID may be used to link collections of standard curves, control samples, and experiment samples results.
Database Table:	expsample_mbaa_detail
Database Column:	assay_group_id
Database Column Type:	varchar(100)

Expsample Meta Data Column experimentSamples.MBAA.txt : Plate Type	
Description:	Describe the MBAA plate type used in the assay.
Required:	No
Controlled Lookup:	Please refer to Appendix A - lk_plate_type.
Comment:	Describe the MBAA plate type used in the assay.
Database Table:	expsample_mbaa_detail
Database Column:	plate_type
Database Column Type:	varchar(50)

25.3. Biosample Meta Data Columns

The Biosample Meta Data Columns include the columns for the combined entity Biosample.

Biosample Meta Data Column experimentSamples.MBAA.txt : Biosample ID	
Description:	The biological sample user defined ID is an identifier chosen by the data provider to refer to a sample. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded. Please enter either a biological sample user defined ID or ImmPort accession. A single biological sample may be linked to an experiment sample.
Database Table:	biosample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Biosample Meta Data Column experimentSamples.MBAA.txt : Subject ID	
Description:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived. A single subject record is permitted.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived.
Database Table:	biosample
Database Column:	subject_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.MBAA.txt : Planned Visit ID	
Description:	The link to a study's planned visit provides temporal context for a sample's derivation from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a study's planned visit user defined ID or ImmPort accession.
Database Table:	biosample
Database Column:	planned_visit_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.MBAA.txt : Type	
Description:	The sample types are adopted from Uberon, Cell and CHEBI ontologies.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_sample_type.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	type
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.MBAA.txt : Subtype

Description:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Required:	No
Lookup:	None
Comment:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Database Table:	biosample
Database Column:	subtype
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.MBAA.txt : Biosample Name	
Description:	The biological sample name is a display name that is available when the data is shared, but it is not referenced by other data.
Required:	No
Lookup:	None
Comment:	The biological sample name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Biosample Meta Data Column experimentSamples.MBAA.txt : Biosample Description	
Description:	The biological sample description is used to describe details of the sample not captured in other columns.
Required:	No

Lookup:	None
Comment:	The biological sample description is used to describe details of the sample not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Biosample Meta Data Column experimentSamples.MBAA.txt : Study Time Collected	
Description:	Study time collected describes the time value for when a sample was derived from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter a number.
Database Table:	biosample
Database Column:	study_time_collected
Database Column Type:	float

Biosample Meta Data Column experimentSamples.MBAA.txt : Study Time Collected Unit	
Description:	The time units are standard terms recommended by the HIPC Standards group.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_time_unit.
Comment:	Please choose from the drop down list.

Database Table:	biosample
Database Column:	study_time_collected_unit
Database Column Type:	varchar(25)

Biosample Meta Data Column experimentSamples.MBAA.txt : Study Time T0 Event	
Description:	The time zero event refers to the study milestone upon which time is based.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_t0_event.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_t0_event
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.MBAA.txt : Study Time T0 Event Specify	
Description:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Required:	No
Lookup:	None
Comment:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Database Table:	biosample
Database Column:	study_time_t0_event_specify
Database Column Type:	varchar(50)

25.4. Experiment Meta Data Columns

The Experiment Meta Data Columns include the columns for the combined entity Experiment.

Experiment Meta Data Column experimentSamples.MBAA.txt : Experiment ID	
Description:	The experiment identifier must be stored in ImmPort or in the experiments.txt template. The experiment serves as the parent entity to bind assay results of a similar type together.
Required:	Yes
Lookup:	None
Comment:	Please enter either a experiment user defined ID or ImmPort accession.
Database Table:	experiment
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Experiment Meta Data Column experimentSamples.MBAA.txt : Protocol ID(s)	
Description:	Please enter either a protocol user defined ID or ImmPort accession for a protocol that describes how the sample was derived and prepared. One or more identifiers can be entered per sample. Separate identifiers by semicolon (;).
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	Please enter either a protocol user defined ID or ImmPort accession. This column is required when either the experiment or biological sample are new.
Database Table:	experiment_2_protocol
Database Column:	protocol_accession
Database Column Type:	varchar(15)

Experiment Meta Data Column experimentSamples.MBAA.txt : Experiment Name	
Description:	The experiment name is a display name that is available when the data is shared, but it is not referenced by other data.
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	The experiment name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(500)

Experiment Meta Data Column experimentSamples.MBAA.txt : Experiment Description	
Description:	The experiment description is used to describe details of the experiment not captured in other columns.
Required:	No
Lookup:	None
Comment:	The experiment description is used to describe details of the experiment not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Experiment Meta Data Column experimentSamples.MBAA.txt : Measurement Technique	
Description:	The measurement technique describes the assay method.

Conditional Required:	Yes for **New Experiment**
Controlled Lookup:	Please refer to Appendix A - lk_exp_measurement_tech.
Comment:	Choose from a drop down list.
Database Table:	experiment
Database Column:	measurement_technique
Database Column Type:	varchar(50)

26. **experimentSamples.Neutralizing_Antibody_Titer.txt**

The neutralizing antibody experiment sample template defines and annotates the assay results for a sample by linking sample, experiment, and results together. More than one analyte's results per assayed sample may be reported by copying the group of columns 'Virus Strain'and 'Titration Dilution Value' needed to describe each assay result. The experiment samples template allows you to describe to ImmPort new experiments and biological samples or link experiments and biological samples stored in ImmPort with assay results. There is considerable flexibility in linking ImmPort content with new content in the templates and there are some general guidelines to remember. All of the experiment sample IDs in the template must always be unique in the template and must not already be stored in ImmPort. The biological sample and the experiment in the template may be new or they both may be new. If the biological sample or the experiment is new, then you must complete the required columns to describe them. When defining a new experiment or biological sample, it is only necessary to complete the required descriptive columns once per experiment or biological sample. The column header names in the templates indicate to what is being described and the '.xls' spreadsheet versions use color codes to indicate what is being described.

26.1. ID Meta Data Column

The ID Meta Data Columns include the ID columns that are referenced by more than one entity in the experiment sample template (for example, experiments and biological samples reference study IDs). The value entered the study ID is linked to experiment and biological sample. The experiment sample ID is the primary ID and can be pre-defined or defined only once and not reused. The biological sample ID and experiment ID can be pre-defined or defined once and re-used within the template.

ID Meta Data Column experimentSamples.Neutralizing_Antibody_Titer.txt : Study ID	
Description:	An experiment and biological sample may be linked to a single study.
Conditional Required:	Yes for **New Experiment And Biosample**
Lookup:	None
Comment:	Please enter either a study user defined ID or ImmPort accession. This column is only required when both the experiment and biological sample are new.
Database Table:	biosample And experiment
Database Column:	study_accession
Database Column Type:	varchar(15)

26.2. Expsample Meta Data Columns

The Expsample Meta Data Columns include the columns for the combined entity Expsample.

Expsample Meta Data Column experimentSamples.Neutralizing_Antibody_Titer.txt : Expsample ID	
Description:	The experiment sample user defined ID is an identifier chosen by the data provider to refer to this sample. This ID may be referenced by other data records (e.g. assay results). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	expsample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Expsample Meta Data Column experimentSamples.Neutralizing_Antibody_Titer.txt : Expsample Name	
Description:	The experiment sample name is a display name that is available when the data is shared, but it is not referenced by other data.
Required:	No
Lookup:	None
Comment:	The experiment sample name is an alternate identifier that is visible when the experiment sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Expsample Meta Data Column experimentSamples.Neutralizing_Antibody_Titer.txt : Expsample Description	
Description:	Describe important characteristics of the sample being assayed.
Required:	No
Lookup:	None
Comment:	Describe important characteristics of the sample being assayed.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Expsample Meta Data Column experimentSamples.Neutralizing_Antibody_Titer.txt : Reagent ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The reagent identifier(s) must be stored in ImmPort or in the reagents.txt template.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Please enter either an assay reagent user defined ID or ImmPort accession.
Database Table:	expsample_2_reagent
Database Column:	reagent_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.Neutralizing_Antibody_Titer.txt : Treatment ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The treatment identifier(s) must be stored in ImmPort or in the treatments.txt template.

Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Please enter either a treatment user defined ID or ImmPort accession.
Database Table:	expsample_2_treatment
Database Column:	treatment_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.Neutralizing_Antibody_Titer.txt : Additional Result File Names	
Description:	Separate file names by a semi-colon (;). The file size name limit is 240 characters.
Required:	No
Lookup:	None
Comment:	Please enter additional result file(s) to link to the experiment sample. The file size name limit is 240 characters.

26.3. Biosample Meta Data Columns

The Biosample Meta Data Columns include the columns for the combined entity Biosample.

Biosample Meta Data Column experimentSamples.Neutralizing_Antibody_Titer.txt : Biosample ID	
Description:	The biological sample user defined ID is an identifier chosen by the data provider to refer to a sample. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded. Please enter either a biological sample user defined ID or ImmPort accession. A single biological sample may be linked to an experiment sample.
Database Table:	biosample

Database Column:	user_defined_id
Database Column Type:	varchar(100)

Biosample Meta Data Column experimentSamples.Neutralizing_Antibody_Titer.txt : Type	
Description:	The sample types are adopted from Uberon, Cell and CHEBI ontologies.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_sample_type.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	type
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.Neutralizing_Antibody_Titer.txt : Subtype	
Description:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Required:	No
Lookup:	None
Comment:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Database Table:	biosample
Database Column:	subtype
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.Neutralizing_Antibody_Titer.txt : Biosample Name	
Description:	The biological sample name is a display name that is available when the data is shared, but it is not referenced by other data.
Required:	No
Lookup:	None
Comment:	The biological sample name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Biosample Meta Data Column experimentSamples.Neutralizing_Antibody_Titer.txt : Biosample Description	
Description:	The biological sample description is used to describe details of the sample not captured in other columns.
Required:	No
Lookup:	None
Comment:	The biological sample description is used to describe details of the sample not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Biosample Meta Data Column experimentSamples.Neutralizing_Antibody_Titer.txt : Subject ID

Description:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived. A single subject record is permitted.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived.
Database Table:	biosample
Database Column:	subject_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.Neutralizing_Antibody_Titer.txt : Planned Visit ID	
Description:	The link to a study's planned visit provides temporal context for a sample's derivation from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a study's planned visit user defined ID or ImmPort accession.
Database Table:	biosample
Database Column:	planned_visit_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.Neutralizing_Antibody_Titer.txt : Study Time Collected	
Description:	Study time collected describes the time value for when a sample was derived from a subject.

Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter a number.
Database Table:	biosample
Database Column:	study_time_collected
Database Column Type:	float

Biosample Meta Data Column experimentSamples.Neutralizing_Antibody_Titer.txt : Study Time Collected Unit	
Description:	The time units are standard terms recommended by the HIPC Standards group.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_time_unit.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_collected_unit
Database Column Type:	varchar(25)

Biosample Meta Data Column experimentSamples.Neutralizing_Antibody_Titer.txt : Study Time T0 Event	
Description:	The time zero event refers to the study milestone upon which time is based.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_t0_event.

Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_t0_event
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.Neutralizing_Antibody_Titer.txt : Study Time T0 Event Specify	
Description:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Required:	No
Lookup:	None
Comment:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Database Table:	biosample
Database Column:	study_time_t0_event_specify
Database Column Type:	varchar(50)

26.4. Experiment Meta Data Columns

The Experiment Meta Data Columns include the columns for the combined entity Experiment.

Experiment Meta Data Column experimentSamples.Neutralizing_Antibody_Titer.txt : Experiment ID	
Description:	The experiment identifier must be stored in ImmPort or in the experiments.txt template. The experiment serves as the parent entity to bind assay results of a similar type together.
Required:	Yes
Lookup:	None
Comment:	Please enter either a experiment user defined ID or ImmPort accession.

Database Table:	experiment
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Experiment Meta Data Column experimentSamples.Neutralizing_Antibody_Titer.txt : Protocol ID(s)	
Description:	Please enter either a protocol user defined ID or ImmPort accession for a protocol that describes how the sample was derived and prepared. One or more identifiers can be entered per sample. Separate identifiers by semicolon (;).
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	Please enter either a protocol user defined ID or ImmPort accession. This column is required when either the experiment or biological sample are new.
Database Table:	experiment_2_protocol
Database Column:	protocol_accession
Database Column Type:	varchar(15)

Experiment Meta Data Column experimentSamples.Neutralizing_Antibody_Titer.txt : Experiment Name	
Description:	The experiment name is a display name that is available when the data is shared, but it is not referenced by other data.
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	The experiment name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample

Database Column:	name
Database Column Type:	varchar(500)

Experiment Meta Data Column experimentSamples.Neutralizing_Antibody_Titer.txt : Experiment Description	
Description:	The experiment description is used to describe details of the experiment not captured in other columns.
Required:	No
Lookup:	None
Comment:	The experiment description is used to describe details of the experiment not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Experiment Meta Data Column experimentSamples.Neutralizing_Antibody_Titer.txt : Measurement Technique	
Description:	The measurement technique describes the assay method.
Conditional Required:	Yes for **New Experiment**
Controlled Lookup:	Please refer to Appendix A - lk_exp_measurement_tech.
Comment:	Choose from a drop down list.
Database Table:	experiment
Database Column:	measurement_technique
Database Column Type:	varchar(50)

26.5. Separator Column

This column must always appear in the template and must immediately follow after the last meta data column and before the (repeating) result column groups.

Separator Column experimentSamples.Neutralizing_Antibody_Titer.txt : Result Separator Column	
Description:	This pseudo column separates meta data from results.
Required:	No
Lookup:	None
Comment:	This pseudo column separates the results (lab tests) from the lab test panel meta data. It must always appear and be the column that appears immediately after the last meta-data column and before any result columns.

26.6. Result Columns

Each result group (that is, result) consists of a group of the following result columns, where the **first column** of the group must always be '**Virus Strain Reported**'.

Result Column experimentSamples.Neutralizing_Antibody_Titer.txt : Virus Strain Reported	
Description:	The name of the virus strain used in the assay. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_virus_strain with preferred column(s) virus_strain_preferred.
Comment:	The name of the virus strain used in the assay. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared. This COLUMN must appear as the FIRST COLUMN for a repeating result column group.
Database Table:	neut_ab_titer_result
Database Column:	virus_strain_reported
Database Column Type:	varchar(200)

Result Column experimentSamples.Neutralizing_Antibody_Titer.txt : Value Reported	
Description:	The maximum sample dilution factor that continues to demonstrate virus neutralization.
Required:	Yes
Lookup:	None
Comment:	A number is expected.
Database Table:	neut_ab_titer_result
Database Column:	value_reported
Database Column Type:	varchar(50)

Result Column experimentSamples.Neutralizing_Antibody_Titer.txt : Unit Reported	
Description:	The dilution factor unit.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_titer_unit with preferred column(s) titer_unit_preferred.
Comment:	The dilution factor unit.
Database Table:	neut_ab_titer_result
Database Column:	unit_reported
Database Column Type:	varchar(200)

Result Column experimentSamples.Neutralizing_Antibody_Titer.txt : Comments	
Description:	Comments captures additional descriptive information that is added to the result.
Required:	No
Lookup:	None

Comment:	Comments captures additional descriptive information that is added to the result.
Database Table:	neut_ab_titer_result
Database Column:	comments
Database Column Type:	varchar(500)

27. **experimentSamples.Other.txt**

This experiment sample template is used when no other experiment sample template is available to define and annotate the assay results for a sample by linking sample, experiment, and results together. The experiment samples template allows you to describe to ImmPort new experiments and biological samples or link experiments and biological samples stored in ImmPort with assay results. There is considerable flexibility in linking ImmPort content with new content in the templates and there are some general guidelines to remember. All of the experiment sample IDs in the template must always be unique in the template and must not already be stored in ImmPort. The biological sample and the experiment in the template may be new or they both may be new. If the biological sample or the experiment are new, then you must complete the required columns to describe them. The column header names in the templates indicate to what is being described and the '.xls' spreadsheet versions use color codes to indicate what is being described.

27.1. ID Meta Data Column

The ID Meta Data Columns include the ID columns that are referenced by more than one entity in the experiment sample template (for example, experiments and biological samples reference study IDs). The value entered the study ID is linked to experiment and biological sample. The experiment sample ID is the primary ID and can be defined only once and not re-used. The biological sample ID and experiment ID can be pre-defined or defined once and re-used within the template.

ID Meta Data Column experimentSamples.Other.txt : Study ID	
Description:	An experiment and biological sample may be linked to a single study.
Conditional Required:	Yes for **New Experiment And Biosample**
Lookup:	None
Comment:	Please enter either a study user defined ID or ImmPort accession. This column is only required when both the experiment and biological sample are new.
Database Table:	biosample And experiment
Database Column:	study_accession
Database Column Type:	varchar(15)

27.2. Expsample Meta Data Columns

The Expsample Meta Data Columns include the columns for the combined entity Expsample.

Expsample Meta Data Column experimentSamples.Other.txt : Expsample ID

Description:	The experiment sample user defined ID is an identifier chosen by the data provider to refer to this sample. This ID may be referenced by other data records (e.g. assay results). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	expsample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Expsample Meta Data Column experimentSamples.Other.txt : Reagent ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The reagent identifier(s) must be stored in ImmPort or in the reagents.txt template.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Please enter either an assay reagent user defined ID or ImmPort accession.
Database Table:	expsample_2_reagent
Database Column:	reagent_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.Other.txt : Treatment ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The treatment identifier(s) must be stored in ImmPort or in the treatments.txt template.
Conditional Required:	Yes for **New Expsample**

Lookup:	None
Comment:	Please enter either a treatment user defined ID or ImmPort accession.
Database Table:	expsample_2_treatment
Database Column:	treatment_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.Other.txt : Expsample Name	
Description:	The experiment sample name is a display name that is available when the data is shared, but it is not referenced by other data records.
Required:	No
Lookup:	None
Comment:	The experiment sample name is an alternate identifier that is visible when the experiment sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Expsample Meta Data Column experimentSamples.Other.txt : Expsample Description	
Description:	Describe important characteristics of the sample being assayed.
Required:	No
Lookup:	None
Comment:	Describe important characteristics of the sample being assayed.
Database Table:	expsample
Database Column:	description

Database Column Type:	varchar(4000)

Expsample Meta Data Column experimentSamples.Other.txt : Additional Result File Names	
Description:	Separate file names by a semi-colon (;). The file size name limit is 240 characters.
Required:	No
Lookup:	None
Comment:	Please enter additional result file(s) to link to the experiment sample. The file size name limit is 240 characters.

Expsample Meta Data Column experimentSamples.Other.txt : Result File Name	
Description:	Enter the file name for this assay result. The file size name limit is 240 characters.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Enter the file name for this assay result. The file size name limit is 240 characters.

27.3. Biosample Meta Data Columns

The Biosample Meta Data Columns include the columns for the combined entity Biosample.

Biosample Meta Data Column experimentSamples.Other.txt : Biosample ID	
Description:	The biological sample user defined ID is an identifier chosen by the data provider to refer to a sample. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded. Please enter either a biological sample user defined ID or ImmPort accession. A single biological sample may be linked to an experiment sample.

Database Table:	biosample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Biosample Meta Data Column experimentSamples.Other.txt : Subject ID	
Description:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived. A single subject record is permitted.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived.
Database Table:	biosample
Database Column:	subject_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.Other.txt : Planned Visit ID	
Description:	The link to a study's planned visit provides temporal context for a sample's derivation from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a study's planned visit user defined ID or ImmPort accession.
Database Table:	biosample
Database Column:	planned_visit_accession

Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.Other.txt : Type	
Description:	The sample types are adopted from Uberon, Cell and CHEBI ontologies.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_sample_type.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	type
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.Other.txt : Subtype	
Description:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Required:	No
Lookup:	None
Comment:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Database Table:	biosample
Database Column:	subtype
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.Other.txt : Biosample Name	
Description:	The biological sample name is a display name that is available when the data is shared, but it is not referenced by other data.
Required:	No
Lookup:	None
Comment:	The biological sample name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Biosample Meta Data Column experimentSamples.Other.txt : Biosample Description	
Description:	The biological sample description is used to describe details of the sample not captured in other columns.
Required:	No
Lookup:	None
Comment:	The biological sample description is used to describe details of the sample not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Biosample Meta Data Column experimentSamples.Other.txt : Study Time Collected	
Description:	Study time collected describes the time value for when a sample was derived from a subject.
Conditional Required:	Yes for **New Biosample**

Lookup:	None
Comment:	Please enter a number.
Database Table:	biosample
Database Column:	study_time_collected
Database Column Type:	float

Biosample Meta Data Column experimentSamples.Other.txt : Study Time Collected Unit	
Description:	The time units are standard terms recommended by the HIPC Standards group.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_time_unit.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_collected_unit
Database Column Type:	varchar(25)

Biosample Meta Data Column experimentSamples.Other.txt : Study Time T0 Event	
Description:	The time zero event refers to the study milestone upon which time is based.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_t0_event.
Comment:	Please choose from the drop down list.
Database Table:	biosample

Database Column:	study_time_t0_event
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.Other.txt : Study Time T0 Event Specify	
Description:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Required:	No
Lookup:	None
Comment:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Database Table:	biosample
Database Column:	study_time_t0_event_specify
Database Column Type:	varchar(50)

27.4. Experiment Meta Data Columns

The Experiment Meta Data Columns include the columns for the combined entity Experiment.

Experiment Meta Data Column experimentSamples.Other.txt : Experiment ID	
Description:	The experiment identifier must be stored in ImmPort or in the experiments.txt template. The experiment serves as the parent entity to bind assay results of a similar type together.
Required:	Yes
Lookup:	None
Comment:	Please enter either a experiment user defined ID or ImmPort accession.
Database Table:	experiment
Database Column:	user_defined_id

Database Column Type:	varchar(100)

Experiment Meta Data Column experimentSamples.Other.txt : Protocol ID(s)	
Description:	Please enter either a protocol user defined ID or ImmPort accession for a protocol that describes how the sample was derived and prepared. One or more identifiers can be entered per sample. Separate identifiers by semicolon (;).
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	Please enter either a protocol user defined ID or ImmPort accession. This column is required when either the experiment or biological sample are new.
Database Table:	experiment_2_protocol
Database Column:	protocol_accession
Database Column Type:	varchar(15)

Experiment Meta Data Column experimentSamples.Other.txt : Experiment Name	
Description:	The experiment name is a display name that is available when the data is shared, but it is not referenced by other data.
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	The experiment name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(500)

Experiment Meta Data Column experimentSamples.Other.txt : Experiment Description	
Description:	The experiment description is used to describe details of the experiment not captured in other columns.
Required:	No
Lookup:	None
Comment:	The experiment description is used to describe details of the experiment not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Experiment Meta Data Column experimentSamples.Other.txt : Measurement Technique	
Description:	The measurement technique describes the assay method.
Conditional Required:	Yes for **New Experiment**
Controlled Lookup:	Please refer to Appendix A - lk_exp_measurement_tech.
Comment:	Choose from a drop down list.
Database Table:	experiment
Database Column:	measurement_technique
Database Column Type:	varchar(50)

28. **experimentSamples.QRT-PCR.txt**

The qRT-PCR experiment sample template defines and annotates the assay results for a sample by linking sample, experiment, and results together. More than one analyte's results per assayed sample may be reported by copying at least the group of columns 'Entrez Gene ID' and 'Threshold Cycles(ct)' needed to describe each assay result. The experiment samples template allows you to describe to ImmPort new experiments and biological samples or link experiments and biological samples stored in ImmPort with assay results. There is considerable flexibility in linking ImmPort content with new content in the templates and there are some general guidelines to remember. All of the experiment sample IDs in the template must always be unique in the template and must not already be stored in ImmPort. The biological sample and the experiment in the template may be new or they both may be new. If the biological sample or the experiment is new, then you must complete the required columns to describe them. When defining a new experiment or biological sample, it is only necessary to complete the required descriptive columns once per experiment or biological sample. The column header names in the templates indicate to what is being described and the '.xls' spreadsheet versions use color codes to indicate what is being described.

28.1. ID Meta Data Column

The ID Meta Data Columns include the ID columns that are referenced by more than one entity in the experiment sample template (for example, experiments and biological samples reference study IDs). The value entered the study ID is linked to experiment and biological sample. The experiment sample ID is the primary ID and can be pre-defined or defined only once and not reused. The biological sample ID and experiment ID can be pre-defined or defined once and re-used within the template.

ID Meta Data Column experimentSamples.QRT-PCR.txt : Study ID	
Description:	An experiment and biological sample may be linked to a single study.
Conditional Required:	Yes for **New Experiment And Biosample**
Lookup:	None
Comment:	Please enter either a study user defined ID or ImmPort accession. This column is only required when both the experiment and biological sample are new.
Database Table:	biosample And experiment
Database Column:	study_accession
Database Column Type:	varchar(15)

28.2. Expsample Meta Data Columns

The Expsample Meta Data Columns include the columns for the combined entity Expsample.

Expsample Meta Data Column experimentSamples.QRT-PCR.txt : Expsample ID	
Description:	The experiment sample user defined ID is an identifier chosen by the data provider to refer to this sample. This ID may be referenced by other data records (e.g. assay results). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	expsample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Expsample Meta Data Column experimentSamples.QRT-PCR.txt : Expsample Name	
Description:	The experiment sample name is a display name that is available when the data is shared, but it is not referenced by other data.
Required:	No
Lookup:	None
Comment:	The experiment sample name is an alternate identifier that is visible when the experiment sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Expsample Meta Data Column experimentSamples.QRT-PCR.txt : Expsample Description	
Description:	Describe important characteristics of the sample being assayed.

Required:	No
Lookup:	None
Comment:	Describe important characteristics of the sample being assayed.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Expsample Meta Data Column experimentSamples.QRT-PCR.txt : Reagent ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The reagent identifier(s) must be stored in ImmPort or in the reagents.txt template.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Please enter either an assay reagent user defined ID or ImmPort accession.
Database Table:	expsample_2_reagent
Database Column:	reagent_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.QRT-PCR.txt : Treatment ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The treatment identifier(s) must be stored in ImmPort or in the treatments.txt template.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Please enter either a treatment user defined ID or ImmPort accession.

Database Table:	expsample_2_treatment
Database Column:	treatment_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.QRT-PCR.txt : Additional Result File Names	
Description:	Separate file names by a semi-colon (;). The file size name limit is 240 characters.
Required:	No
Lookup:	None
Comment:	Please enter additional result file(s) to link to the experiment sample. The file size name limit is 240 characters.

28.3. Biosample Meta Data Columns

The Biosample Meta Data Columns include the columns for the combined entity Biosample.

Biosample Meta Data Column experimentSamples.QRT-PCR.txt : Biosample ID	
Description:	The biological sample user defined ID is an identifier chosen by the data provider to refer to a sample. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded. Please enter either a biological sample user defined ID or ImmPort accession. A single biological sample may be linked to an experiment sample.
Database Table:	biosample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Biosample Meta Data Column experimentSamples.QRT-PCR.txt : Type	
Description:	The sample types are adopted from Uberon, Cell and CHEBI ontologies.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_sample_type.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	type
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.QRT-PCR.txt : Subtype	
Description:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Required:	No
Lookup:	None
Comment:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Database Table:	biosample
Database Column:	subtype
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.QRT-PCR.txt : Biosample Name	
Description:	The biological sample name is a display name that is available when the data is shared, but it is not referenced by other data.

Required:	No
Lookup:	None
Comment:	The biological sample name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Biosample Meta Data Column experimentSamples.QRT-PCR.txt : Biosample Description	
Description:	The biological sample description is used to describe details of the sample not captured in other columns.
Required:	No
Lookup:	None
Comment:	The biological sample description is used to describe details of the sample not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Biosample Meta Data Column experimentSamples.QRT-PCR.txt : Subject ID	
Description:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived. A single subject record is permitted.
Conditional Required:	Yes for **New Biosample**
Lookup:	None

Comment:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived.
Database Table:	biosample
Database Column:	subject_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.QRT-PCR.txt : Planned Visit ID	
Description:	The link to a study's planned visit provides temporal context for a sample's derivation from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a study's planned visit user defined ID or ImmPort accession.
Database Table:	biosample
Database Column:	planned_visit_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.QRT-PCR.txt : Study Time Collected	
Description:	Study time collected describes the time value for when a sample was derived from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter a number.
Database Table:	biosample

Database Column:	study_time_collected
Database Column Type:	float

Biosample Meta Data Column experimentSamples.QRT-PCR.txt : Study Time Collected Unit	
Description:	The time units are standard terms recommended by the HIPC Standards group.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_time_unit.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_collected_unit
Database Column Type:	varchar(25)

Biosample Meta Data Column experimentSamples.QRT-PCR.txt : Study Time T0 Event	
Description:	The time zero event refers to the study milestone upon which time is based.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_t0_event.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_t0_event
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.QRT-PCR.txt : Study Time T0 Event Specify	
Description:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Required:	No
Lookup:	None
Comment:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Database Table:	biosample
Database Column:	study_time_t0_event_specify
Database Column Type:	varchar(50)

28.4. Experiment Meta Data Columns

The Experiment Meta Data Columns include the columns for the combined entity Experiment.

Experiment Meta Data Column experimentSamples.QRT-PCR.txt : Experiment ID	
Description:	The experiment identifier must be stored in ImmPort or in the experiments.txt template. The experiment serves as the parent entity to bind assay results of a similar type together.
Required:	Yes
Lookup:	None
Comment:	Please enter either a experiment user defined ID or ImmPort accession.
Database Table:	experiment
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Experiment Meta Data Column experimentSamples.QRT-PCR.txt : Protocol ID(s)

Description:	Please enter either a protocol user defined ID or ImmPort accession for a protocol that describes how the sample was derived and prepared. One or more identifiers can be entered per sample. Separate identifiers by semicolon (;).
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	Please enter either a protocol user defined ID or ImmPort accession. This column is required when either the experiment or biological sample are new.
Database Table:	experiment_2_protocol
Database Column:	protocol_accession
Database Column Type:	varchar(15)

Experiment Meta Data Column experimentSamples.QRT-PCR.txt : Experiment Name	
Description:	The experiment name is a display name that is available when the data is shared, but it is not referenced by other data.
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	The experiment name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(500)

Experiment Meta Data Column experimentSamples.QRT-PCR.txt : Experiment Description	
Description:	The experiment description is used to describe details of the experiment not captured in other columns.
Required:	No

Lookup:	None
Comment:	The experiment description is used to describe details of the experiment not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Experiment Meta Data Column experimentSamples.QRT-PCR.txt : Measurement Technique	
Description:	The measurement technique describes the assay method.
Conditional Required:	Yes for **New Experiment**
Controlled Lookup:	Please refer to Appendix A - lk_exp_measurement_tech.
Comment:	Choose from a drop down list.
Database Table:	experiment
Database Column:	measurement_technique
Database Column Type:	varchar(50)

28.5. Separator Column

This column must always appear in the template and must immediately follow after the last meta data column and before the (repeating) result column groups.

Separator Column experimentSamples.QRT-PCR.txt : Result Separator Column	
Description:	This pseudo column separates meta data from results.
Required:	No
Lookup:	None

Comment:	This pseudo column separates the results (lab tests) from the lab test panel meta data. It must always appear and be the column that appears immediately after the last meta-data column and before any result columns.

28.6. Result Columns

Each result group (that is, result) consists of a group of the following result columns, where the **first column** of the group must always be '**Gene Symbol Name**'.

Result Column experimentSamples.QRT-PCR.txt : Gene Symbol Name	
Description:	The NCBI Gene symbol for the gene being assayed. Please select a gene symbol from the list provided if the gene symbol matches your symbol or enter a symbol if there is not an appropriate one provided. This symbol is visible when the result is shared. If the gene sybmol is a NCBI Gene Symbol that is provided in the list, then the columns 'Gene Name' and 'Gene ID' will also be overwritten by the gene name and Entrez Gene ID provided by NCBI.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_analyte with preferred column(s) immunology_symbol and short_label and analyte_preferred.
Comment:	The NCBI Gene symbol for the gene being assayed. Please select a gene symbol from the list provided if the gene symbol matches your symbol or enter a symbol if there is not an appropriate one provided. This symbol is visible when the result is shared.

Result Column experimentSamples.QRT-PCR.txt : Value Reported	
Description:	This value could be absolute or relative. For example, an absolute expression value could be 6 ng RNA/mg intestine. In this case, 6 should be entered in the 'Expression value of target RNA' column, while ng RNA/ mg intestine is in the 'Expression unit of target RNA' column. A relative expression value, like signal versus GAPDH, could be 2.07. In this case, 2.07 should be in the 'Expression value of target RNA' column, while relative to GAPDH is in the 'Expression unit of target RNA' column.
Required:	Yes
Lookup:	None
Comment:	A number is expected.
Database Table:	pcr_result
Database Column:	value_reported

Database Column Type:	varchar(50)

Result Column experimentSamples.QRT-PCR.txt : Unit Reported	
Description:	The unit for the Expression Value Of Target Nucleic ACID. Please select a unit from the list provided if the unit matches your unit or enter a unit if there is not an appropriate one provided.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_pcr_expression_unit with preferred column(s) expression_unit_preferred.
Comment:	The unit for the Expression Value Of Target Nucleic ACID. Please select a unit from the list provided if the unit matches your unit or enter a unit if there is not an appropriate one provided.
Database Table:	pcr_result
Database Column:	unit_reported
Database Column Type:	varchar(200)

Result Column experimentSamples.QRT-PCR.txt : Gene ID	
Description:	The NCBI Gene ID for the gene being assayed. A number is expected.
Required:	No
Lookup:	None
Comment:	A number is expected.
Database Table:	pcr_result
Database Column:	gene_id
Database Column Type:	varchar(10)

Result Column experimentSamples.QRT-PCR.txt : Gene Name	
Description:	The NCBI Gene name for the gene being assayed.
Required:	No
Lookup:	None
Comment:	The NCBI Gene name for the gene being assayed.
Database Table:	pcr_result
Database Column:	gene_name
Database Column Type:	varchar(4000)

Result Column experimentSamples.QRT-PCR.txt : Other Gene Accession	
Description:	Additional identifier(s) for the gene being assayed.
Required:	No
Lookup:	None
Comment:	Additional identifier(s) for the gene being assayed.
Database Table:	pcr_result
Database Column:	other_gene_accession
Database Column Type:	varchar(250)

Result Column experimentSamples.QRT-PCR.txt : Comments	
Description:	Comments captures additional descriptive information.
Required:	No
Lookup:	None
Comment:	Comments captures additional descriptive information.

Database Table:	pcr_result
Database Column:	comments
Database Column Type:	varchar(500)

29. **experimentSamples.RNA_Sequencing.txt**

The RNA sequencing Transcripts results experiment sample template defines and annotates the assay results for a sample by linking sample, experiment, and results together. The experiment samples template allows you to describe to ImmPort new experiments and biological samples or link experiments and biological samples stored in ImmPort with assay results. There is considerable flexibility in linking ImmPort content with new content in the templates and there are some general guidelines to remember. All of the experiment sample IDs in the template must always be unique in the template and must not already be stored in ImmPort. The biological sample and the experiment in the template may be new or they both may be new. If the biological sample or the experiment are new, then you must complete the required columns to describe them. The column header names in the templates indicate to what is being described and the '.xls' spreadsheet versions use color codes to indicate what is being described.

29.1. ID Meta Data Column

The ID Meta Data Columns include the ID columns that are referenced by more than one entity in the experiment sample template (for example, experiments and biological samples reference study IDs). The value entered the study ID is linked to experiment and biological sample. The experiment sample ID is the primary ID and can be defined only once and not re-used. The biological sample ID and experiment ID can be pre-defined or defined once and re-used within the template.

ID Meta Data Column experimentSamples.RNA_Sequencing.txt : Study ID	
Description:	An experiment and biological sample may be linked to a single study.
Conditional Required:	Yes for **New Experiment And Biosample**
Lookup:	None
Comment:	Please enter either a study user defined ID or ImmPort accession. This column is only required when both the experiment and biological sample are new.
Database Table:	biosample And experiment
Database Column:	study_accession
Database Column Type:	varchar(15)

29.2. Expsample Meta Data Columns

The Expsample Meta Data Columns include the columns for the combined entity Expsample.

Expsample Meta Data Column experimentSamples.RNA_Sequencing.txt : Expsample ID

Description:	The experiment sample user defined ID is an identifier chosen by the data provider to refer to this sample. This ID may be referenced by other data records (e.g. assay results). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	expsample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Expsample Meta Data Column experimentSamples.RNA_Sequencing.txt : Reagent ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The reagent identifier(s) must be stored in ImmPort or in the reagents.txt template.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Please enter either an assay reagent user defined ID or ImmPort accession.
Database Table:	expsample_2_reagent
Database Column:	reagent_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.RNA_Sequencing.txt : Treatment ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The treatment identifier(s) must be stored in ImmPort or in the treatments.txt template.
Conditional Required:	Yes for **New Expsample**

Lookup:	None
Comment:	Please enter either a treatment user defined ID or ImmPort accession.
Database Table:	expsample_2_treatment
Database Column:	treatment_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.RNA_Sequencing.txt : Expsample Name	
Description:	The experiment sample name is a display name that is available when the data is shared, but it is not referenced by other data records.
Required:	No
Lookup:	None
Comment:	The experiment sample name is an alternate identifier that is visible when the experiment sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Expsample Meta Data Column experimentSamples.RNA_Sequencing.txt : Expsample Description	
Description:	Describe important characteristics of the sample being assayed.
Required:	No
Lookup:	None
Comment:	Describe important characteristics of the sample being assayed.
Database Table:	expsample

Database Column:	description
Database Column Type:	varchar(4000)

Expsample Meta Data Column experimentSamples.RNA_Sequencing.txt : Additional Result File Names	
Description:	Separate file names by a semi-colon (;). The file size name limit is 240 characters.
Required:	No
Lookup:	None
Comment:	Please enter additional result file(s) to link to the experiment sample. The file size name limit is 240 characters.

Expsample Meta Data Column experimentSamples.RNA_Sequencing.txt : ImmPort Template?	
Description:	If the result file is an ImmPort results template (strongly recommended by NIAID DAIT), choose 'Yes' from the drop down list and do not include a file name in the "Result File Name" column. If the result file is not an ImmPort results template, choose 'No' from the drop down list and include a file name in the "Result File Name" column. If NO RESULT FILE is provided, then leave this column blank.
Required:	No
Controlled Lookup:	Please refer to Appendix A - lk_yes_no.
Comment:	If the result file is an ImmPort results template (strongly recommended by NIAID DAIT), choose 'Yes' from the drop down list and do not include a file name in the "Result File Name" column. If the result file is not an ImmPort results template, choose 'No' from the drop down list and include a file name in the "Result File Name" column. If NO RESULT FILE is provided, then leave this column blank.

Expsample Meta Data Column experimentSamples.RNA_Sequencing.txt : Result File Name

Description:	Completing this column is conditional upon whether the "ImmPort Template?" column value is set to "Yes" or "No". If the value is not set, DO NOT PROVIDE a result file (it will be ignored). If the "ImmPort Template?" column value is set to "Yes", do not enter a file name in the "Result File Name" column. If the "ImmPort Template?" column value is set to "No", enter a file name in the "Result File Name" column. ImmPort supports results templates for many of the commonly used immunological assay methods. These templates facilitate the sharing and re-use of results data in a standard format. The file size name limit is 240 characters.
Required:	No
Lookup:	None
Comment:	Please use the ImmPort template for this assay result (as opposed to custom file formats) to standardize the format of the data when it is shared. If you use the ImmPort template (strongly recommended by NIAID DAIT), do not enter the template name in this column and set the "ImmPort Template?" column value to "Yes". If you do not use the ImmPort template and are providing a result template, enter the file name (including file extension) that contains assay results for the experiment sample and set the "ImmPort Template?" column value to "No". The file size name limit is 240 characters.

Expsample Meta Data Column experimentSamples.RNA_Sequencing.txt : Repository Name	
Description:	ImmPort expects RNA sequencing results to be deposited into a public repository since this is a prerequisite for publication. In order to avoid duplication of data upload by requiring the same data be sent to ImmPort as well as the public repository, ImmPort requires public repository name and accession.
Required:	No
Controlled Lookup:	Please refer to Appendix A - lk_public_repository.
Comment:	RNA sequencing results are expected to be deposited into a public repository. If you provide NO RESULTS FILE, please choose the repository name from the list.
Database Table:	expsample_public_repository
Database Column:	repository_name
Database Column Type:	varchar(50)

Expsample Meta Data Column experimentSamples.RNA_Sequencing.txt : Repository Accession

Description:	The public repository accession should be the most granular or highest resolution provided (e.g. sample level accession, not sample group accession).
Required:	No
Lookup:	None
Comment:	Enter the accession that links to the assay result file(s). You need to provide the repository accession if you do NOT PROVIDE A RESULTS FILE.
Database Table:	expsample_public_repository
Database Column:	repository_accession
Database Column Type:	varchar(20)

29.3. Biosample Meta Data Columns

The Biosample Meta Data Columns include the columns for the combined entity Biosample.

Biosample Meta Data Column experimentSamples.RNA_Sequencing.txt : Biosample ID	
Description:	The biological sample user defined ID is an identifier chosen by the data provider to refer to a sample. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded. Please enter either a biological sample user defined ID or ImmPort accession. A single biological sample may be linked to an experiment sample.
Database Table:	biosample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Biosample Meta Data Column experimentSamples.RNA_Sequencing.txt : Subject ID

Description:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived. A single subject record is permitted.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived.
Database Table:	biosample
Database Column:	subject_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.RNA_Sequencing.txt : Planned Visit ID	
Description:	The link to a study's planned visit provides temporal context for a sample's derivation from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a study's planned visit user defined ID or ImmPort accession.
Database Table:	biosample
Database Column:	planned_visit_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.RNA_Sequencing.txt : Type	
Description:	The sample types are adopted from Uberon, Cell and CHEBI ontologies.
Conditional Required:	Yes for **New Biosample**

Controlled Lookup:	Please refer to Appendix A - lk_sample_type.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	type
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.RNA_Sequencing.txt : Subtype	
Description:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Required:	No
Lookup:	None
Comment:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Database Table:	biosample
Database Column:	subtype
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.RNA_Sequencing.txt : Biosample Name	
Description:	The biological sample name is a display name that is available when the data is shared, but it is not referenced by other data.
Required:	No
Lookup:	None
Comment:	The biological sample name is an alternate identifier that is visible when the sample is shared.

Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Biosample Meta Data Column experimentSamples.RNA_Sequencing.txt : Biosample Description	
Description:	The biological sample description is used to describe details of the sample not captured in other columns.
Required:	No
Lookup:	None
Comment:	The biological sample description is used to describe details of the sample not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Biosample Meta Data Column experimentSamples.RNA_Sequencing.txt : Study Time Collected	
Description:	Study time collected describes the time value for when a sample was derived from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter a number.
Database Table:	biosample
Database Column:	study_time_collected

Database Column Type:	float

Biosample Meta Data Column experimentSamples.RNA_Sequencing.txt : Study Time Collected Unit	
Description:	The time units are standard terms recommended by the HIPC Standards group.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_time_unit.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_collected_unit
Database Column Type:	varchar(25)

Biosample Meta Data Column experimentSamples.RNA_Sequencing.txt : Study Time T0 Event	
Description:	The time zero event refers to the study milestone upon which time is based.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_t0_event.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_t0_event
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.RNA_Sequencing.txt : Study Time T0 Event Specify	
Description:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Required:	No
Lookup:	None
Comment:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Database Table:	biosample
Database Column:	study_time_t0_event_specify
Database Column Type:	varchar(50)

29.4. Experiment Meta Data Columns

The Experiment Meta Data Columns include the columns for the combined entity Experiment.

Experiment Meta Data Column experimentSamples.RNA_Sequencing.txt : Experiment ID	
Description:	The experiment identifier must be stored in ImmPort or in the experiments.txt template. The experiment serves as the parent entity to bind assay results of a similar type together.
Required:	Yes
Lookup:	None
Comment:	Please enter either a experiment user defined ID or ImmPort accession.
Database Table:	experiment
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Experiment Meta Data Column experimentSamples.RNA_Sequencing.txt : Protocol ID(s)

Description:	Please enter either a protocol user defined ID or ImmPort accession for a protocol that describes how the sample was derived and prepared. One or more identifiers can be entered per sample. Separate identifiers by semicolon (;).
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	Please enter either a protocol user defined ID or ImmPort accession. This column is required when either the experiment or biological sample are new.
Database Table:	experiment_2_protocol
Database Column:	protocol_accession
Database Column Type:	varchar(15)

Experiment Meta Data Column experimentSamples.RNA_Sequencing.txt : Experiment Name	
Description:	The experiment name is a display name that is available when the data is shared, but it is not referenced by other data.
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	The experiment name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(500)

Experiment Meta Data Column experimentSamples.RNA_Sequencing.txt : Experiment Description	
Description:	The experiment description is used to describe details of the experiment not captured in other columns.

Required:	No
Lookup:	None
Comment:	The experiment description is used to describe details of the experiment not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Experiment Meta Data Column experimentSamples.RNA_Sequencing.txt : Measurement Technique	
Description:	The measurement technique describes the assay method.
Conditional Required:	Yes for **New Experiment**
Controlled Lookup:	Please refer to Appendix A - lk_exp_measurement_tech.
Comment:	Choose from a drop down list.
Database Table:	experiment
Database Column:	measurement_technique
Database Column Type:	varchar(50)

30. **experimentSamples.Virus_Neutralization.txt**

The virus neutralization experiment sample template defines and annotates the assay results for a sample by linking sample, experiment, and results together. More than one analyte's results per assayed sample may be reported by copying the group of columns 'Virus Strain'and 'Titration Dilution Value' needed to describe each assay result. The experiment samples template allows you to describe to ImmPort new experiments and biological samples or link experiments and biological samples stored in ImmPort with assay results. There is considerable flexibility in linking ImmPort content with new content in the templates and there are some general guidelines to remember. All of the experiment sample IDs in the template must always be unique in the template and must not already be stored in ImmPort. The biological sample and the experiment in the template may be new or they both may be new. If the biological sample or the experiment is new, then you must complete the required columns to describe them. When defining a new experiment or biological sample, it is only necessary to complete the required descriptive columns once per experiment or biological sample. The column header names in the templates indicate to what is being described and the '.xls' spreadsheet versions use color codes to indicate what is being described.

30.1. ID Meta Data Column

The ID Meta Data Columns include the ID columns that are referenced by more than one entity in the experiment sample template (for example, experiments and biological samples reference study IDs). The value entered the study ID is linked to experiment and biological sample. The experiment sample ID is the primary ID and can be pre-defined or defined only once and not reused. The biological sample ID and experiment ID can be pre-defined or defined once and re-used within the template.

ID Meta Data Column experimentSamples.Virus_Neutralization.txt : Study ID	
Description:	An experiment and biological sample may be linked to a single study.
Conditional Required:	Yes for **New Experiment And Biosample**
Lookup:	None
Comment:	Please enter either a study user defined ID or ImmPort accession. This column is only required when both the experiment and biological sample are new.
Database Table:	biosample And experiment
Database Column:	study_accession
Database Column Type:	varchar(15)

30.2. Expsample Meta Data Columns

The Expsample Meta Data Columns include the columns for the combined entity Expsample.

Expsample Meta Data Column experimentSamples.Virus_Neutralization.txt : Expsample ID	
Description:	The experiment sample user defined ID is an identifier chosen by the data provider to refer to this sample. This ID may be referenced by other data records (e.g. assay results). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	expsample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Expsample Meta Data Column experimentSamples.Virus_Neutralization.txt : Expsample Name	
Description:	The experiment sample name is a display name that is available when the data is shared, but it is not referenced by other data.
Required:	No
Lookup:	None
Comment:	The experiment sample name is an alternate identifier that is visible when the experiment sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Expsample Meta Data Column experimentSamples.Virus_Neutralization.txt : Expsample Description

Description:	Describe important characteristics of the sample being assayed.
Required:	No
Lookup:	None
Comment:	Describe important characteristics of the sample being assayed.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Expsample Meta Data Column experimentSamples.Virus_Neutralization.txt : Reagent ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The reagent identifier(s) must be stored in ImmPort or in the reagents.txt template.
Conditional Required:	Yes for **New Expsample**
Lookup:	None
Comment:	Please enter either an assay reagent user defined ID or ImmPort accession.
Database Table:	expsample_2_reagent
Database Column:	reagent_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.Virus_Neutralization.txt : Treatment ID(s)	
Description:	One or more identifiers can be entered. Separate identifiers by semicolon (;). The treatment identifier(s) must be stored in ImmPort or in the treatments.txt template.
Conditional Required:	Yes for **New Expsample**
Lookup:	None

Comment:	Please enter either a treatment user defined ID or ImmPort accession.
Database Table:	expsample_2_treatment
Database Column:	treatment_accession
Database Column Type:	varchar(15)

Expsample Meta Data Column experimentSamples.Virus_Neutralization.txt : Additional Result File Names	
Description:	Separate file names by a semi-colon (;). The file size name limit is 240 characters.
Required:	No
Lookup:	None
Comment:	Please enter additional result file(s) to link to the experiment sample. The file size name limit is 240 characters.

30.3. Biosample Meta Data Columns

The Biosample Meta Data Columns include the columns for the combined entity Biosample.

Biosample Meta Data Column experimentSamples.Virus_Neutralization.txt : Biosample ID	
Description:	The biological sample user defined ID is an identifier chosen by the data provider to refer to a sample. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded. Please enter either a biological sample user defined ID or ImmPort accession. A single biological sample may be linked to an experiment sample.
Database Table:	biosample
Database Column:	user_defined_id

Database Column Type:	varchar(100)

Biosample Meta Data Column experimentSamples.Virus_Neutralization.txt : Type	
Description:	The sample types are adopted from Uberon, Cell and CHEBI ontologies.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_sample_type.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	type
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.Virus_Neutralization.txt : Subtype	
Description:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Required:	No
Lookup:	None
Comment:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Database Table:	biosample
Database Column:	subtype
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.Virus_Neutralization.txt : Biosample Name	
Description:	The biological sample name is a display name that is available when the data is shared, but it is not referenced by other data.
Required:	No
Lookup:	None
Comment:	The biological sample name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(200)

Biosample Meta Data Column experimentSamples.Virus_Neutralization.txt : Biosample Description	
Description:	The biological sample description is used to describe details of the sample not captured in other columns.
Required:	No
Lookup:	None
Comment:	The biological sample description is used to describe details of the sample not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Biosample Meta Data Column experimentSamples.Virus_Neutralization.txt : Subject ID	
Description:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived. A single subject record is permitted.

Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived.
Database Table:	biosample
Database Column:	subject_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.Virus_Neutralization.txt : Planned Visit ID	
Description:	The link to a study's planned visit provides temporal context for a sample's derivation from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a study's planned visit user defined ID or ImmPort accession.
Database Table:	biosample
Database Column:	planned_visit_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column experimentSamples.Virus_Neutralization.txt : Study Time Collected	
Description:	Study time collected describes the time value for when a sample was derived from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None

Comment:	Please enter a number.
Database Table:	biosample
Database Column:	study_time_collected
Database Column Type:	float

Biosample Meta Data Column experimentSamples.Virus_Neutralization.txt : Study Time Collected Unit	
Description:	The time units are standard terms recommended by the HIPC Standards group.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_time_unit.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_collected_unit
Database Column Type:	varchar(25)

Biosample Meta Data Column experimentSamples.Virus_Neutralization.txt : Study Time T0 Event	
Description:	The time zero event refers to the study milestone upon which time is based.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_t0_event.
Comment:	Please choose from the drop down list.
Database Table:	biosample

Database Column:	study_time_t0_event
Database Column Type:	varchar(50)

Biosample Meta Data Column experimentSamples.Virus_Neutralization.txt : Study Time T0 Event Specify	
Description:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Required:	No
Lookup:	None
Comment:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Database Table:	biosample
Database Column:	study_time_t0_event_specify
Database Column Type:	varchar(50)

30.4. Experiment Meta Data Columns

The Experiment Meta Data Columns include the columns for the combined entity Experiment.

Experiment Meta Data Column experimentSamples.Virus_Neutralization.txt : Experiment ID	
Description:	The experiment identifier must be stored in ImmPort or in the experiments.txt template. The experiment serves as the parent entity to bind assay results of a similar type together.
Required:	Yes
Lookup:	None
Comment:	Please enter either a experiment user defined ID or ImmPort accession.
Database Table:	experiment
Database Column:	user_defined_id

Database Column Type:	varchar(100)

Experiment Meta Data Column experimentSamples.Virus_Neutralization.txt : Protocol ID(s)	
Description:	Please enter either a protocol user defined ID or ImmPort accession for a protocol that describes how the sample was derived and prepared. One or more identifiers can be entered per sample. Separate identifiers by semicolon (;).
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	Please enter either a protocol user defined ID or ImmPort accession. This column is required when either the experiment or biological sample are new.
Database Table:	experiment_2_protocol
Database Column:	protocol_accession
Database Column Type:	varchar(15)

Experiment Meta Data Column experimentSamples.Virus_Neutralization.txt : Experiment Name	
Description:	The experiment name is a display name that is available when the data is shared, but it is not referenced by other data.
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	The experiment name is an alternate identifier that is visible when the sample is shared.
Database Table:	expsample
Database Column:	name
Database Column Type:	varchar(500)

Experiment Meta Data Column experimentSamples.Virus_Neutralization.txt : Experiment Description	
Description:	The experiment description is used to describe details of the experiment not captured in other columns.
Required:	No
Lookup:	None
Comment:	The experiment description is used to describe details of the experiment not captured in other columns.
Database Table:	expsample
Database Column:	description
Database Column Type:	varchar(4000)

Experiment Meta Data Column experimentSamples.Virus_Neutralization.txt : Measurement Technique	
Description:	The measurement technique describes the assay method.
Conditional Required:	Yes for **New Experiment**
Controlled Lookup:	Please refer to Appendix A - lk_exp_measurement_tech.
Comment:	Choose from a drop down list.
Database Table:	experiment
Database Column:	measurement_technique
Database Column Type:	varchar(50)

30.5. Separator Column

This column must always appear in the template and must immediately follow after the last meta data column and before the (repeating) result column groups.

Separator Column experimentSamples.Virus_Neutralization.txt : Result Separator Column	
Description:	This pseudo column separates meta data from results.
Required:	No
Lookup:	None
Comment:	This pseudo column separates the results (lab tests) from the lab test panel meta data. It must always appear and be the column that appears immediately after the last meta-data column and before any result columns.

30.6. Result Columns

Each result group (that is, result) consists of a group of the following result columns, where the **first column** of the group must always be '**Virus Strain Reported**'.

Result Column experimentSamples.Virus_Neutralization.txt : Virus Strain Reported	
Description:	The name of the virus strain used in the assay. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_virus_strain with preferred column(s) virus_strain_preferred.
Comment:	The name of the virus strain used in the assay. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared. This COLUMN must appear as the FIRST COLUMN for a repeating result column group.
Database Table:	neut_ab_titer_result
Database Column:	virus_strain_reported
Database Column Type:	varchar(200)

Result Column experimentSamples.Virus_Neutralization.txt : Value Reported	
Description:	The maximum sample dilution factor that continues to demonstrate virus neutralization.
Required:	Yes
Lookup:	None

Comment:	A number is expected.
Database Table:	neut_ab_titer_result
Database Column:	value_reported
Database Column Type:	varchar(50)

Result Column experimentSamples.Virus_Neutralization.txt : Unit Reported	
Description:	The dilution factor unit.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_titer_unit with preferred column(s) titer_unit_preferred.
Comment:	The dilution factor unit.
Database Table:	neut_ab_titer_result
Database Column:	unit_reported
Database Column Type:	varchar(200)

Result Column experimentSamples.Virus_Neutralization.txt : Comments	
Description:	Comments captures additional descriptive information that is added to the result.
Required:	No
Lookup:	None
Comment:	Comments captures additional descriptive information that is added to the result.
Database Table:	neut_ab_titer_result
Database Column:	comments

Database Column Type:	varchar(500)

31. **FCM_Derived_data.txt**
The flow cytometry derived data template captures and annotates the assay results for a sample by linking sample, experiment, and interpreted results together.

Table: Marker Intensities (Marker State) and Their Preferred Labels, and Gates Not Based on Cell Protein Markers and Preferred Labels

This table highlights the preferred marker expression state terms (marker state) to use in the cytometry derived data templates. The Alternative Labels note how indicated reported marker expression intensity states are mapped to preferred terms. For gates that are not based on cell protein markers, common cases have been identified and need to be idenfified by the preferred label. The following table provides information on the Marker States for marker expression intensity states, and information on Preferred Labels for gates not bassed on cell protein markers.

Marker State	Preferred Label	Alternative Labels
Marker Intensities (Marker State)		
Negative	-	negative, neg
Positive	+	positive, pos
Low	+-	low, lo, LO, (low), -low, dim, di
Intermediate	+~	intermediate, int, medium, med, -medium
High	++	high, hi, (high), -high, Bright, bright, bri, br
----------	----------	----------
Gates Not Based on Cell Protein Markers		
Preferred Label	Based On	Alternative Labels
lymphocyte	size (FSC vs SSC)	ly, lymp, lymph, lymphocyte, Lymph, Lymphs, Lymp, Lymphocytes
monocyte	size (FSC vs SSC)	mo, mono, monos, MNC, Monocyte, Mono
granulocyte	size (FSC vs SSC)	gran
intact	size (FSC vs SSC)	intact_cells, intact_cells_population

singlet	relative dimensions (SSC or FCS, A vs H, H vs W, A vs W)	sing, singlets, Singlet, Singlets, doublet_excluded, sing-F, intact_singlet
viable	dye	live, Annexin-, live/dead stain
proliferated	dye	CFSE-, TracerViolet-
infected	Infection marker	
MHC epitope specific	MHC:epitope staining	

The template has validation levels that define the level of validation required for this template. The validation for this template is either Standard or HIPC, where HIPC is a fuller validation with more required columns controlled/preferred vocabularies.

FCM_Derived_data.txt : Expsample ID	
Description:	The experiment sample identifier must be stored in ImmPort or in the experimentsamples.txt template.
Required:	Yes
Lookup:	None
Comment:	Please enter either an experiment sample user defined ID or ImmPort accession.
Database Table:	fcs_analyzed_result And expsample_2_file_info
Database Column:	expsample_accession
Database Column Type:	varchar(15)

FCM_Derived_data.txt : Population Name Reported	
Description:	The drop down list provides a list of cell population names. Please select a name if it matches your cell population name or enter a population name if there is not an appropriate one provided. The population name has a limit of 150 characters. This column can also have the format: "lineage_prefix ; population name", "population_name&modifiers", or "lineage_prefix ; population_name&modifiers". Also, if the Population Name Reported does not occur in the drop down, it will be tested against the lk_cell_population_pref_map to determine a preferred name.
Required:	Yes

Preferred Lookup:	Please refer to Appendix A - lk_cell_population with preferred column(s) population_prefix_preferred and population_name_preferred. Also, please refer to Appendix A - lk_cell_population_pref_map for Pref Mapping with preferred column(s) population_name_preferred.
Comment:	The population name is the type of cells whose count is reported. Please select a population name from the drop down list if it matches your cell population name or enter a name if there is not an appropriate one provided. This column can also have the format: "lineage_prefix ; population name", "population_name&modifiers", or "lineage_prefix ; population_name&modifiers". Also, if the Population Name Reported does not occur in the drop down, it will be tested against the lk_cell_population_pref_map to determine a preferred name.
Database Table:	fcs_analyzed_result
Database Column:	population_name_reported
Database Column Type:	varchar(150)

FCM_Derived_data.txt : Gating Definition Reported	
Description:	he gating definition is the set of markers and their expression profile that describes a cell population name. Please select a gating definition from the drop down list if it matches your gating definition or enter a gating definition if there is not an appropriate one provided. The marker names should conform to standard names as described in the LK_ANALYTE table. Note that a comma, forward slash or pipe may be used as marker delimiter. The expression values are '-', '+', '+-', '+~', '++', or ''. The gating definition has a limit of 150 characters.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_cell_population_definition with preferred column(s) population_defnition_preferred.
Comment:	The gating definition is the set of markers and their expression profile. Please select a gating definition from the drop down list or enter a gating definition. Please see the ImmPort Upload Templates for details on representing marker names, delimiters and expression values.
Database Table:	fcs_analyzed_result
Database Column:	population_defnition_reported
Database Column Type:	varchar(150)

FCM_Derived_data.txt : Parent Population Reported	
Description:	The drop down provides the base parent population. Please select a name if it matches your base parent population name or enter a name if there is not an appropriate one provided. This column can also have the format: "lineage_prefix ; population name", "population_name&modifiers", or "lineage_prefix ; population_name&modifiers". Also, if the Parent Population Reported does not occur in the drop down, it will be tested against the lk_cell_population_pref_map to determine a preferred name.
Required:	No
Preferred Lookup:	Please refer to Appendix A - lk_cell_population with preferred column(s) population_prefix_preferred and population_name_preferred. Also, please refer to Appendix A - lk_cell_population_pref_map for Pref Mapping with preferred column(s) parent_population_preferred.
Comment:	The base parent population name. Please select a population name from the drop down list if it matches your base parent population name or enter a name if there is not an appropriate one provided. This column can also have the format: "lineage_prefix ; population name", "population_name&modifiers", or "lineage_prefix ; population_name&modifiers" . Also, if the Parent Population eported does not occur in the drop down, it will be tested against the lk_cell_population_pref_map to determine a preferred name.
Database Table:	fcs_analyzed_result
Database Column:	parent_population_reported
Database Column Type:	varchar(150)

FCM_Derived_data.txt : Population Statistic (count, percentile, etc)	
Description:	The count of the cell type defined by the marker gating definition.
Required:	Yes
Lookup:	None
Comment:	A number is expected.
Database Table:	fcs_analyzed_result
Database Column:	population_statistic_reported
Database Column Type:	varchar(50)

FCM_Derived_data.txt : Population Stat Unit Reported	
Description:	The unit used to describe the cell count. Please select a unit from the drop down list if the definition matches your unit name or enter a unit if there is not an appropriate one provided.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_cell_pop_statistic_unit with preferred column(s) statistic_unit_preferred.
Comment:	The unit used to describe the cell count. Please select a unit from the list provided if the definition matches your unit name or enter a unit if there is not an appropriate one provided.
Database Table:	fcs_analyzed_result
Database Column:	population_stat_unit_reported
Database Column Type:	varchar(100)

FCM_Derived_data.txt : Workspace File	
Description:	An XML formatted export of the analysis program is expected (e.g. an xml format of a FlowJo .jo or .wsp file). The file size name limit is 240 characters.
Required:	Yes
Lookup:	None
Comment:	The name of the file that stores the interpreted flow cytometry results from the analysis program. The file size name limit is 240 characters.

FCM_Derived_data.txt : Comments	
Description:	Comments captures additional descriptive information.
Required:	No
Lookup:	None
Comment:	Comments captures additional descriptive information.
Database Table:	fcs_analyzed_result

Database Column:	comments
Database Column Type:	varchar(500)

32. **HAI_Results.txt**

The HAI experiment sample template defines and annotates the assay results for a sample by linking sample, experiment, and results together. More than one analyte's results per assayed sample may be reported by copying the group of columns 'Virus Strain'and 'Titration Dilution Value' needed to describe each assay result.

HAI_Results.txt : Expsample ID	
Description:	The experiment sample identifier must be stored in ImmPort or in the experimentsamples.txt template.
Required:	Yes
Lookup:	None
Comment:	Please enter either an experiment sample user defined ID or ImmPort accession.
Database Table:	hai_result And expsample_2_file_info
Database Column:	expsample_accession
Database Column Type:	varchar(15)

HAI_Results.txt : Virus Strain Reported	
Description:	The name of the virus strain used in the assay. The list of values displays common immunology terms on the left and their preferred term on the right, separated by a semi-colon. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_virus_strain with preferred column(s) virus_strain_preferred.
Comment:	The name of the virus strain used in the assay. The list of values displays common immunology terms on the left and their preferred term on the right, separated by a semi-colon. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Database Table:	hai_result
Database Column:	virus_strain_reported

Database Column Type:	varchar(200)

HAI_Results.txt : Value Reported	
Description:	The maximum sample dilution factor that continues to demonstrate inhibition of hemagglutination.
Required:	Yes
Lookup:	None
Comment:	A number is expected.
Database Table:	hai_result
Database Column:	value_reported
Database Column Type:	varchar(50)

HAI_Results.txt : Unit Reported	
Description:	The dilution factor unit.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_titer_unit with preferred column(s) titer_unit_preferred.
Comment:	The dilution factor unit.
Database Table:	hai_result
Database Column:	unit_reported
Database Column Type:	varchar(200)

HAI_Results.txt : Comments	
Description:	Comments captures additional descriptive information.

Required:	No
Lookup:	None
Comment:	Comments captures additional descriptive information.
Database Table:	hai_result
Database Column:	comments
Database Column Type:	varchar(500)

33. **HLA_Typing.txt**

The HLA experiment sample template defines and annotates the assay results for a sample by linking sample, experiment, and results together.

HLA_Typing.txt : Expsample ID	
Description:	The experiment sample identifier must be stored in ImmPort or in the experimentsamples.txt template.
Required:	Yes
Lookup:	None
Comment:	Please enter either an experiment sample user defined ID or ImmPort accession.
Database Table:	hla_typing_result And expsample_2_file_info
Database Column:	expsample_accession
Database Column Type:	varchar(15)

HLA_Typing.txt : Ancestral Population	
Description:	ImmPort recommends using population names as defined by the http://www.allelefrequencies.net site.
Required:	Yes
Controlled Lookup:	Please refer to Appendix A - lk_ancestral_population.
Comment:	ImmPort recommends using population names as defined by the http://www.allelefrequencies.net site.
Database Table:	hla_typing_result
Database Column:	ancestral_population
Database Column Type:	varchar(250)

HLA_Typing.txt : HLA-A Allele 1

Description:	
Required:	No
Lookup:	None
Comment:	
Database Table:	hla_typing_result
Database Column:	allele_1
Database Column Type:	varchar(250)

HLA_Typing.txt : HLA-A Allele 2	
Description:	
Required:	No
Lookup:	None
Comment:	
Database Table:	hla_typing_result
Database Column:	allele_2
Database Column Type:	varchar(250)

HLA_Typing.txt : HLA-B Allele 1	
Description:	
Required:	No
Lookup:	None
Comment:	
Database Table:	hla_typing_result

Database Column:	allele_1
Database Column Type:	varchar(250)

HLA_Typing.txt : HLA-B Allele 2	
Description:	
Required:	No
Lookup:	None
Comment:	
Database Table:	hla_typing_result
Database Column:	allele_2
Database Column Type:	varchar(250)

HLA_Typing.txt : HLA-C Allele 1	
Description:	
Required:	No
Lookup:	None
Comment:	
Database Table:	hla_typing_result
Database Column:	allele_1
Database Column Type:	varchar(250)

HLA_Typing.txt : HLA-C Allele 2

Description:	
Required:	No
Lookup:	None
Comment:	
Database Table:	hla_typing_result
Database Column:	allele_2
Database Column Type:	varchar(250)

HLA_Typing.txt : HLA-DPA1 Allele 1	
Description:	
Required:	No
Lookup:	None
Comment:	
Database Table:	hla_typing_result
Database Column:	allele_1
Database Column Type:	varchar(250)

HLA_Typing.txt : HLA-DPA1 Allele 2	
Description:	
Required:	No
Lookup:	None
Comment:	
Database Table:	hla_typing_result

Database Column:	allele_2
Database Column Type:	varchar(250)

HLA_Typing.txt : HLA-DPB1 Allele 1	
Description:	
Required:	No
Lookup:	None
Comment:	
Database Table:	hla_typing_result
Database Column:	allele_1
Database Column Type:	varchar(250)

HLA_Typing.txt : HLA-DPB1 Allele 2	
Description:	
Required:	No
Lookup:	None
Comment:	
Database Table:	hla_typing_result
Database Column:	allele_2
Database Column Type:	varchar(250)

HLA_Typing.txt : HLA-DQA1 Allele 1

Description:	This is the description of the field HLA-DQA1 Allele 1. Please refer to the user guide for more description. This description can also be found in the user document
Required:	No
Lookup:	None
Comment:	
Database Table:	hla_typing_result
Database Column:	allele_1
Database Column Type:	varchar(250)

HLA_Typing.txt : HLA-DQA1 Allele 2	
Description:	
Required:	No
Lookup:	None
Comment:	
Database Table:	hla_typing_result
Database Column:	allele_2
Database Column Type:	varchar(250)

HLA_Typing.txt : HLA-DQB1 Allele 1	
Description:	
Required:	No
Lookup:	None
Comment:	

Database Table:	hla_typing_result
Database Column:	allele_1
Database Column Type:	varchar(250)

HLA_Typing.txt : HLA-DQB1 Allele 2	
Description:	
Required:	No
Lookup:	None
Comment:	
Database Table:	hla_typing_result
Database Column:	allele_2
Database Column Type:	varchar(250)

HLA_Typing.txt : HLA-DRB1 Allele 1	
Description:	
Required:	No
Lookup:	None
Comment:	
Database Table:	hla_typing_result
Database Column:	allele_1
Database Column Type:	varchar(250)

HLA_Typing.txt : HLA-DRB1 Allele 2	
Description:	
Required:	No
Lookup:	None
Comment:	
Database Table:	hla_typing_result
Database Column:	allele_2
Database Column Type:	varchar(250)

HLA_Typing.txt : HLA-DRB3 Allele 1	
Description:	
Required:	No
Lookup:	None
Comment:	
Database Table:	hla_typing_result
Database Column:	allele_1
Database Column Type:	varchar(250)

HLA_Typing.txt : HLA-DRB3 Allele 2	
Description:	
Required:	No
Lookup:	None
Comment:	

Database Table:	hla_typing_result
Database Column:	allele_2
Database Column Type:	varchar(250)

HLA_Typing.txt : HLA-DRB4 Allele 1	
Description:	
Required:	No
Lookup:	None
Comment:	
Database Table:	hla_typing_result
Database Column:	allele_1
Database Column Type:	varchar(250)

HLA_Typing.txt : HLA-DRB4 Allele 2	
Description:	
Required:	No
Lookup:	None
Comment:	
Database Table:	hla_typing_result
Database Column:	allele_2
Database Column Type:	varchar(250)

HLA_Typing.txt : HLA-DRB5 Allele 1	
Description:	
Required:	No
Lookup:	None
Comment:	
Database Table:	hla_typing_result
Database Column:	allele_1
Database Column Type:	varchar(250)

HLA_Typing.txt : HLA-DRB5 Allele 2	
Description:	
Required:	No
Lookup:	None
Comment:	
Database Table:	hla_typing_result
Database Column:	allele_2
Database Column Type:	varchar(250)

HLA_Typing.txt : Comments	
Description:	Comments captures additional descriptive information.
Required:	No
Lookup:	None
Comment:	Comments captures additional descriptive information.

Database Table:	hla_typing_result
Database Column:	comments
Database Column Type:	varchar(500)

34. **immuneExposure.txt**

The subjectHuman and subjectAnimals templates define and annotate the subjects in studies with respect to immune exposure. The Immune Exposure template updates the subjects previously defined in studies with respect to immune exposure.

Table: Exposure Process Reported Conditional Logic

The following Matrix defines what reported template columns are required (XXXXX) for a given 'Exposure Process Reported' template column value. N.B. If multiple immune exposure values are needed for subject (e.g. more than one vaccine is administered), then multiple rows must be added to the template with the same 'Exposure Process Reported' column value. The 'Exposure Material ID' (YYYYY) is also required when the 'Exposure Material Reported' is required. However, if the 'Exposure Process Reported' is preferred value (contained in lk_exposure_material or lk_exposue_material_pref_map), the the column 'Exposure Material ID' can be left blank and it will be filled in by uploader.

Exposure Process Reported	Exposure Material Reported	Exposure Material ID	Disease Reported	Disease Ontology ID	Disease Stage Reported
administering substance in vivo	XXXXX	YYYYY			
documented exposure without evidence for disease	XXXXX	YYYYY			
environmental exposure to endemic/ubiquitous agent without evidence for disease	XXXXX	YYYYY			
exposure to substance without evidence for disease	XXXXX	YYYYY			
exposure with existing immune reactivity without evidence for disease	XXXXX	YYYYY			

infectious challenge	XXXXX	YYYYY			
occurrence of allergy	XXXXX	YYYYY	XXXXX	XXXXX	XXXXX
occurrence of asymptomatic infection	XXXXX	YYYYY			
occurrence of autoimmune disease			XXXXX	XXXXX	XXXXX
occurrence of cancer			XXXXX	XXXXX	XXXXX
occurrence of disease			XXXXX	XXXXX	XXXXX
occurrence of infectious disease	XXXXX	YYYYY	XXXXX	XXXXX	XXXXX
transplantation or transfusion	XXXXX	YYYYY			
vaccination	XXXXX	YYYYY			

immuneExposure.txt : Subject ID	
Description:	Please enter either a subject user defined ID or ImmPort accession for the subject for the reported immune exposure.
Required:	Yes
Lookup:	None
Comment:	Please enter either a subject user defined ID or ImmPort accession for the subject for the reported immune exposure.
Database Table:	immune_exposure
Database Column:	subject_accession
Database Column Type:	varchar(15)

immuneExposure.txt : Arm Or Cohort ID	
Description:	A subject may be assigned to a single arm within a study. When subjects are initially uploaded to ImmPort, they may be assigned to a single study's arm.
Required:	Yes
Lookup:	None
Comment:	Please enter either a study arm or cohort user defined ID or ImmPort accession. When subjects are initially uploaded to ImmPort, they may be assigned to a single study's arm.
Database Table:	immune_exposure
Database Column:	arm_accession
Database Column Type:	varchar(15)

immuneExposure.txt : Exposure Process Reported	
Description:	This identifies the type of process through which a host is exposed and the type of evidence for that exposure to have happened, which are tightly intertwined. This is the only element of the four that is always mandatory. Please select an exposure process from the list provided if the process matches yours or enter a exposure process if there is not an appropriate one provided. This exposure process is visible when the result is shared. The value provided by the user is further checked against the pref mapping table lk_exposure_process_pref_map.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_exposure_process with preferred column(s) exposure_process_preferred. Also, please refer to Appendix A - lk_exposure_process_pref_map for Pref Mapping with preferred column(s) exposure_process_preferred.
Comment:	This identifies the type of process through which a host is exposed and the type of evidence for that exposure to have happened, which are tightly intertwined. This is the only element of the four that is always mandatory. Please select an exposure process from the list provided if the process matches yours or enter a exposure process if there is not an appropriate one provided. This exposure process is visible when the result is shared. The value provided by the user is further checked against the pref mapping table lk_exposure_process_pref_map.
Database Table:	immune_exposure
Database Column:	exposure_process_reported

Database Column Type:	varchar(100)

immuneExposure.txt : Exposure Material Reported	
Description:	This describes what substance(s) the host is exposed to and/or develops immune reactions to as part of the exposure process. Please select an exposure material from the list provided if the exposure material matches yours or enter a exposure material if there is not an appropriate one provided. This exposure material is visible when the result is shared. The value provided by the user is further checked against the pref mapping table lk_exposure_material_pref_map.
Required:	No
Preferred Lookup:	Please refer to Appendix A - lk_exposure_material with preferred column(s) exposure_material_preferred and exposure_material_id. Also, please refer to Appendix A - lk_exposure_material_pref_map for Pref Mapping with preferred column(s) exposure_material_preferred.
Comment:	This describes what substance(s) the host is exposed to and/or develops immune reactions to as part of the exposure process. Please select an exposure material from the list provided if the exposure material matches yours or enter a exposure material if there is not an appropriate one provided. This exposure material is visible when the result is shared. The value provided by the user is further checked against the pref mapping table lk_exposure_material_pref_map.
Database Table:	immune_exposure
Database Column:	exposure_material_reported
Database Column Type:	varchar(200)

immuneExposure.txt : Exposure Material ID	
Description:	The NCBI or Vaccine Ontology ID associated with the exposure material. If the Exposure Material Reported is not a preferred value, then the Exposure Material ID must be provided. If the Exposure Material Reported is a preferred value, then the Exposure Material ID will be automatically be the ID associated with the preferred value and user will NOT need to supply this ID.
Required:	No
Lookup:	None

Comment:	The NCBI or Vaccine Ontology ID associated with the exposure material. If the Exposure Material Reported is not a preferred value, then the Exposure Material ID must be provided. If the Exposure Material Reported is a preferred value, then the Exposure Material ID will be automatically be the ID associated with the preferred value and user will NOT need to supply this ID.
Database Table:	immune_exposure
Database Column:	exposure_material_id
Database Column Type:	varchar(100)

immuneExposure.txt : Disease Reported	
Description:	This indicates the specific disease of the host associated with the exposure. Please select a disease from the list provided if the disease matches yours or enter a disease if there is not an appropriate one provided. This disease is visible when the result is shared. The value provided by the user is further checked against the pref mapping table lk_exposure_material_pref_map.
Required:	No
Preferred Lookup:	Please refer to Appendix A - lk_disease with preferred column(s) disease_preferred and disease_ontology_id. Also, please refer to Appendix A - lk_study_condition_pref_mappng for Pref Mapping with preferred column(s) disease_preferred.
Comment:	This indicates the specific disease of the host associated with the exposure. Please select a disease from the list provided if the disease matches yours or enter a disease if there is not an appropriate one provided. This disease is visible when the result is shared. The Value provide by the user is further checked against the pref mapping table lk_study_condition_pref_mappng.
Database Table:	immune_exposure
Database Column:	disease_reported
Database Column Type:	varchar(550)

immuneExposure.txt : Disease Ontology ID	
Description:	The NCBI Disease Ontology ID associated with the disease. If the Disease Reported is not a preferred value, then the Disease Ontology ID must be provided. If the disease is a preferred value, then the Disease Ontology ID will be the DOID associated with the preferred value.

Required:	No
Lookup:	None
Comment:	The NCBI Disease Ontology ID associated with the disease. If the Disease Reported is not a preferred value, then the Disease Ontology ID must be provided. If the disease is a preferred value, then the Disease Ontology ID will be the DOID associated with the preferred value.
Database Table:	immune_exposure
Database Column:	disease_ontology_id
Database Column Type:	varchar(100)

immuneExposure.txt : Disease Stage Reported	
Description:	This provides a broad classification of how the disease has progressed. Please select a disease stage from the list provided if the disease stage matches yours or enter a disease stage if there is not an appropriate one provided. This disease stage is visible when the result is shared.
Required:	No
Preferred Lookup:	Please refer to Appendix A - lk_disease_stage with preferred column(s) disease_stage_preferred.
Comment:	This provides a broad classification of how the disease has progressed. Please select a disease stage from the list provided if the disease stage matches yours or enter a disease stage if there is not an appropriate one provided. This disease stage is visible when the result is shared.
Database Table:	immune_exposure
Database Column:	disease_stage_reported
Database Column Type:	varchar(100)

35. **interventions.txt**

The Intervention Template records the study interventions, concomitant medications, and anything else that was reported as entering a subject.

interventions.txt : User Defined ID	
Description:	The intervention user defined ID is an identifier chosen by the data provider to refer to a adverse event. The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	intervention
Database Column:	user_defined_id
Database Column Type:	varchar(200)

interventions.txt : Subject ID	
Description:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived. A single subject record is permitted.
Required:	Yes
Lookup:	None
Comment:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived.
Database Table:	intervention
Database Column:	subject_accession
Database Column Type:	varchar(15)

interventions.txt : Study ID

Description:	A biological sample may be linked to a single study.
Required:	Yes
Lookup:	None
Comment:	Please enter either a study user defined ID or ImmPort accession.
Database Table:	intervention
Database Column:	study_accession
Database Column Type:	varchar(15)

interventions.txt : Name Reported	
Description:	The intervention name is not referenced by other data records.
Required:	Yes
Lookup:	None
Comment:	The intervention name is an alternate identifier that is visible when the sample is shared.
Database Table:	intervention
Database Column:	name_reported
Database Column Type:	varchar(125)

interventions.txt : Compound Name Reported	
Description:	The compound name describes what substance entered the subject.
Required:	Yes
Lookup:	None
Comment:	The compound name describes what substance entered the subject.
Database Table:	intervention

Database Column:	compound_name_reported
Database Column Type:	varchar(250)

interventions.txt : Compound Role	
Description:	Compound role indicates the purpose or category of the substance.
Required:	Yes
Controlled Lookup:	Please refer to Appendix A - lk_compound_role.
Comment:	Compound role indicates the purpose or category of the substance.
Database Table:	intervention
Database Column:	compound_role
Database Column Type:	varchar(40)

interventions.txt : Dose Reported	
Description:	The amount of a substance.
Required:	Yes
Lookup:	None
Comment:	The amount of a substance.
Database Table:	intervention
Database Column:	dose_reported
Database Column Type:	varchar(150)

interventions.txt : Start Day

Description:	The study day in which the substance was initially encountered.
Required:	No
Lookup:	None
Comment:	The study day in which the substance was initially encountered.
Database Table:	intervention
Database Column:	start_day
Database Column Type:	varchar(40)

interventions.txt : End Day	
Description:	The study day in which the substance was encounter ended.
Required:	No
Lookup:	None
Comment:	The study day in which the substance was encounter ended.
Database Table:	intervention
Database Column:	end_day
Database Column Type:	varchar(40)

interventions.txt : Status	
Description:	Did the substance encounter complete or was ended.
Required:	No
Lookup:	None
Comment:	Did the substance encounter complete or was ended.
Database Table:	intervention

Database Column:	status
Database Column Type:	varchar(40)

interventions.txt : Reported Indication	
Description:	The purpose the substance was encountered.
Required:	No
Lookup:	None
Comment:	The purpose the substance was encountered.
Database Table:	intervention
Database Column:	reported_indication
Database Column Type:	varchar(255)

interventions.txt : Formulation	
Description:	The packaging or delivery of the substance.
Required:	No
Lookup:	None
Comment:	The packaging or delivery of the substance.
Database Table:	intervention
Database Column:	formulation
Database Column Type:	varchar(125)

interventions.txt : Dose

Description:	The dose value.
Required:	No
Lookup:	None
Comment:	The dose value.
Database Table:	intervention
Database Column:	dose
Database Column Type:	float

interventions.txt : Dose Units	
Description:	The dose unit.
Required:	No
Lookup:	None
Comment:	The dose unit.
Database Table:	intervention
Database Column:	dose_units
Database Column Type:	varchar(40)

interventions.txt : Dose Freq Per Interval	
Description:	How often the substance was encountered.
Required:	No
Lookup:	None
Comment:	How often the substance was encountered.
Database Table:	intervention

Database Column:	dose_freq_per_interval
Database Column Type:	varchar(40)

interventions.txt : Route Of Admin Reported	
Description:	How the substance was administered.
Required:	No
Lookup:	None
Comment:	How the substance was administered.
Database Table:	intervention
Database Column:	route_of_admin_reported
Database Column Type:	varchar(40)

interventions.txt : Is Ongoing	
Description:	Is the substance encounter continuing.
Required:	No
Lookup:	None
Comment:	Is the substance encounter continuing.
Database Table:	intervention
Database Column:	is_ongoing
Database Column Type:	varchar(40)

interventions.txt : Start Time

Description:	Time within a study day the substance is initially encountered.
Required:	No
Lookup:	None
Comment:	Time within a study day the substance is initially encountered.
Database Table:	intervention
Database Column:	start_time
Database Column Type:	varchar(40)

interventions.txt : End Time	
Description:	Time within a study day the substance encounter ended.
Required:	No
Lookup:	None
Comment:	Time within a study day the substance encounter ended.
Database Table:	intervention
Database Column:	end_time
Database Column Type:	varchar(40)

interventions.txt : Duration	
Description:	Length of time for the encounter.
Required:	No
Lookup:	None
Comment:	Length of time for the encounter.
Database Table:	intervention

Database Column:	duration
Database Column Type:	varchar(40)

interventions.txt : Duration Unit	
Description:	Time unit for the duration.
Required:	No
Controlled Lookup:	Please refer to Appendix A - lk_time_unit.
Comment:	Time unit for the duration.
Database Table:	intervention
Database Column:	duration_unit
Database Column Type:	varchar(10)

36. **KIR_Typing.txt**

The KIR experiment sample template defines and annotates the assay results for a sample by linking sample, experiment, and results together.

KIR_Typing.txt : Expsample ID	
Description:	The experiment sample identifier must be stored in ImmPort or in the experimentsamples.txt template.
Required:	Yes
Lookup:	None
Comment:	Please enter either an experiment sample user defined ID or ImmPort accession.
Database Table:	kir_typing_result And expsample_2_file_info
Database Column:	expsample_accession
Database Column Type:	varchar(15)

KIR_Typing.txt : KIR Haplotype	
Description:	
Required:	Yes
Lookup:	None
Comment:	
Database Table:	kir_typing_result
Database Column:	kir_haplotype
Database Column Type:	varchar(250)

KIR_Typing.txt : Allele 1	
Description:	

Required:	No
Lookup:	None
Comment:	
Database Table:	kir_typing_result
Database Column:	allele_1
Database Column Type:	varchar(250)

KIR_Typing.txt : Allele 2	
Description:	
Required:	No
Lookup:	None
Comment:	
Database Table:	kir_typing_result
Database Column:	allele_2
Database Column Type:	varchar(250)

KIR_Typing.txt : Comments	
Description:	
Required:	No
Lookup:	None
Comment:	
Database Table:	kir_typing_result
Database Column:	comments

Database Column Type:	varchar(500)

37. **labTest_Results.txt**

The lab test results template is a legacy template that supports reporting the lab test results (but does not support defining the lab test panel which is the parent of a lab test). The function of this template is also captured in the lab tests template. This template will continue to be supported for the foreseeable future to support backward compatibility.

labTest_Results.txt : User Defined ID	
Description:	The lab test user defined ID is an identifier chosen by the data provider to refer the lab test. The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	lab_test
Database Column:	user_defined_id
Database Column Type:	varchar(100)

labTest_Results.txt : Lab Test Panel ID	
Description:	The lab test panel identifier must be stored in ImmPort or in the labTestPanels.txt template. The lab test panel serves as the parent entity to bind lab test results of a similar type together.
Required:	Yes
Lookup:	None
Comment:	Please enter either a lab test panel user defined ID or ImmPort accession.
Database Table:	lab_test
Database Column:	lab_test_panel_accession
Database Column Type:	varchar(15)

labTest_Results.txt : Biosample ID	
Description:	The biosample identifier must be stored in ImmPort or in the biosamples.txt template. A single biosample identifier is expected.
Required:	Yes
Lookup:	None
Comment:	Please enter either a biological sample user defined ID or ImmPort accession. A single biological sample may be linked to an experiment sample.
Database Table:	lab_test
Database Column:	biosample_accession
Database Column Type:	varchar(15)

labTest_Results.txt : Name Reported	
Description:	The lab test name describes lab test. Please select a unit from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the panel is shared.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_lab_test_name with preferred column(s) name_preferred.
Comment:	Please select a unit from the list provided if the name matches your name or enter a name if there is not an appropriate one provided.
Database Table:	lab_test
Database Column:	name_reported
Database Column Type:	varchar(125)

labTest_Results.txt : Result Value Reported	
Description:	The lab test result captures the assayed value for a sample and can include letters, numbers and greater than or less than symbols.
Required:	Yes

Lookup:	None
Comment:	The lab test result captures the assayed value.
Database Table:	lab_test
Database Column:	result_value_reported
Database Column Type:	varchar(250)

labTest_Results.txt : Result Unit Reported	
Description:	The lab test result unit describes the unit for the lab test value.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_unit_of_measure with preferred column(s) unit_of_measure_preferred.
Comment:	The lab test result unit describes the unit for the lab test value.
Database Table:	lab_test
Database Column:	result_unit_reported
Database Column Type:	varchar(40)

38. **labTestPanels.txt**

The lab test panels template is a legacy template that defines and annotates the collection of lab tests applied to a sample (but not the lab test results). The function of this template is also captured in the lab tests template. This template will continue to be supported for the foreseeable future to support backward compatibility.

labTestPanels.txt : User Defined ID	
Description:	The lab test panel user defined ID is an identifier chosen by the data provider to refer to lab panel. This ID may be referenced by other data records (e.g. lab test). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	lab_test_panel
Database Column:	user_defined_id
Database Column Type:	varchar(100)

labTestPanels.txt : Name Reported	
Description:	The lab panel name describes a lab test panel. Please select a preferred value from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the panel is shared.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_lab_test_panel_name with preferred column(s) name_preferred.
Comment:	The lab panel name describes a lab test panel. Please select a preferred value from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the panel is shared.
Database Table:	lab_test_panel
Database Column:	name_reported

Database Column Type:	varchar(125)

labTestPanels.txt : Study ID	
Description:	A lab test panel may be linked to a single study.
Required:	Yes
Lookup:	None
Comment:	Please enter either a study user defined ID or ImmPort accession for the study in which the lab test panel occurs.
Database Table:	lab_test_panel
Database Column:	study_accession
Database Column Type:	varchar(15)

labTestPanels.txt : Protocol ID(s)	
Description:	Please enter either a protocol user defined ID or ImmPort accession. One or more identifiers can be entered per subject. Separate identifiers by semicolon (;).
Required:	Yes
Lookup:	None
Comment:	Please enter either a protocol user defined ID or ImmPort accession.
Database Table:	lab_test_panel_2_protocol
Database Column:	protocol_accession
Database Column Type:	varchar(15)

39. **labTests.txt**

The lab tests template defines and annotates the lab test panels, the lab tests and results. This template combines the functions of the legacy lab test panels and lab test results templates into a single template. The biological sample and the lab test panel can be either new or pre-defined in this template. Any combination is acceptable. The only restriction is that the biological sample is the key to template and must be unique within the template.

39.1. ID Meta Data Column

The ID Meta Data Columns include the ID columns that are referenced by more than one entity in the lab test template (for example, biological samples and lab test panels reference study IDs). The biosample ID is the primary ID and can be pre-defined or defined once and not re-used. The lab test panel ID can be pre-defined or defined once and re-used within the template

ID Meta Data Column labTests.txt : Study ID	
Description:	A lab test panel may be linked to a single study.
Conditional Required:	Yes for **New Biosample And Lab Test Panel**
Lookup:	None
Comment:	Please enter a study user defined ID or ImmPort accession for the study in which the lab test panel occurs. The Study ID is only required when both the lab test panel and biological sample are new.
Database Table:	biosample And lab_test_panel
Database Column:	study_accession
Database Column Type:	varchar(15)

39.2. Biosample Meta Data Columns

The Biosample Meta Data Columns include the columns for the combined entity Biosample.

Biosample Meta Data Column labTests.txt : Biosample ID	
Description:	The biological sample user defined ID is an identifier chosen by the data provider to refer to a sample. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None

Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded. Please enter either a biological sample user defined ID or ImmPort accession. A single biological sample may be linked to a lab test.
Database Table:	biosample
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Biosample Meta Data Column labTests.txt : Subject ID	
Description:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived. A single subject record is permitted.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a subject user defined ID or ImmPort accession for the subject from which the sample was derived.
Database Table:	biosample
Database Column:	subject_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column labTests.txt : Planned Visit ID	
Description:	The link to a study's planned visit provides temporal context for a sample's derivation from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter either a study's planned visit user defined ID or ImmPort accession.

Database Table:	biosample
Database Column:	planned_visit_accession
Database Column Type:	varchar(15)

Biosample Meta Data Column labTests.txt : Type	
Description:	The sample types are adopted from Uberon, Cell and CHEBI ontologies.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_sample_type.
Comment:	Please choose a biological sample type from the drop down list.
Database Table:	biosample
Database Column:	type
Database Column Type:	varchar(50)

Biosample Meta Data Column labTests.txt : Subtype	
Description:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Required:	No
Lookup:	None
Comment:	Enter a sample type that is of finer resolution than the standard sample types provided. If the 'Biological Sample Type' is 'Other', then the sample subtype must be entered.
Database Table:	biosample
Database Column:	subtype

Database Column Type:	varchar(50)

Biosample Meta Data Column labTests.txt : Name	
Description:	The biological sample name is not referenced by other data records.
Required:	No
Lookup:	None
Comment:	The biological sample name is an alternate identifier that is visible when the sample is shared.
Database Table:	biosample
Database Column:	name
Database Column Type:	varchar(200)

Biosample Meta Data Column labTests.txt : Description	
Description:	The biological sample description is used to describe details of the sample not captured in other columns.
Required:	No
Lookup:	None
Comment:	The biological sample description is used to describe details of the sample not captured in other columns.
Database Table:	biosample
Database Column:	description
Database Column Type:	varchar(4000)

Biosample Meta Data Column labTests.txt : Study Time Collected

Description:	Study time collected describes the time value for when a sample was derived from a subject.
Conditional Required:	Yes for **New Biosample**
Lookup:	None
Comment:	Please enter a number.
Database Table:	biosample
Database Column:	study_time_collected
Database Column Type:	float

Biosample Meta Data Column labTests.txt : Study Time Collected Unit	
Description:	The time units are standard terms recommended by the HIPC Standards group.
Conditional Required:	Yes for **New Biosample**
Controlled Lookup:	Please refer to Appendix A - lk_time_unit.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_collected_unit
Database Column Type:	varchar(25)

Biosample Meta Data Column labTests.txt : Study Time T0 Event	
Description:	The time zero event refers to the study milestone upon which time is based.
Conditional Required:	Yes for **New Biosample**

Controlled Lookup:	Please refer to Appendix A - lk_t0_event.
Comment:	Please choose from the drop down list.
Database Table:	biosample
Database Column:	study_time_t0_event
Database Column Type:	varchar(50)

Biosample Meta Data Column labTests.txt : Study Time T0 Event Specify	
Description:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Required:	No
Lookup:	None
Comment:	Enter a time zero event if 'Other' is selected in column 'Study Time T0 Event'.
Database Table:	biosample
Database Column:	study_time_t0_event_specify
Database Column Type:	varchar(50)

39.3. Lab Test Panel Meta Data Columns

The Lab Test Panel Meta Data Columns include the columns for the combined entity Lab Test Panel.

Lab Test Panel Meta Data Column labTests.txt : Lab Test Panel ID	
Description:	The lab test panel user defined ID is an identifier chosen by the data provider to refer to lab panel. This ID may be referenced by other data records (e.g. lab test). The user defined ID is not shared.
Required:	Yes
Lookup:	None

Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	lab_test_panel
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Lab Test Panel Meta Data Column labTests.txt : Protocol ID(s)	
Description:	Please enter either a protocol user defined ID or ImmPort accession. One or more identifiers can be entered per subject. Separate identifiers by semicolon (;).
Conditional Required:	Yes for **New Lab Test Panel**
Lookup:	None
Comment:	Please enter either a protocol user defined ID or ImmPort accession. The Protocol ID(s) is required when either the lab test panel or the biological sample are new.
Database Table:	lab_test_panel_2_protocol
Database Column:	protocol_accession
Database Column Type:	varchar(15)

Lab Test Panel Meta Data Column labTests.txt : Name Reported	
Description:	The lab panel name describe lab test panel. Please select a lab panel name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the panel is shared.
Conditional Required:	Yes for **New Lab Test Panel**
Preferred Lookup:	Please refer to Appendix A - lk_lab_test_panel_name with preferred column(s) name_preferred.

Comment:	The lab panel name describes the lab test panel. Please select a lab panel name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the panel is shared.
Database Table:	lab_test_panel
Database Column:	name_reported
Database Column Type:	varchar(125)

39.4. Separator Column

This column must always appear in the template and must immediately follow after the last meta data column and before the (repeating) result column groups.

Separator Column labTests.txt : Result Separator Column	
Description:	This pseudo column separates meta data from results.
Required:	No
Lookup:	None
Comment:	This pseudo column separates the results (lab tests) from the lab test panel meta data. It must always appear and be the column that appears immediately after the last meta-data column and before any result columns.

39.5. Result Columns

Each result group (that is, result) consists of a group of the following result columns, where the **first column** of the group must always be '**User Defined ID**'.

Result Column labTests.txt : User Defined ID	
Description:	The lab test user defined ID is an identifier chosen by the data provider to refer the lab test. The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The lab test identifier should be unique to the ImmPort workspace to which the data will be uploaded. This COLUMN must appear as the FIRST COLUMN for a repeating result column group.

Database Table:	lab_test
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Result Column labTests.txt : Name Reported	
Description:	The lab test name describes lab test. Please select a lab test name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the panel is shared.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_lab_test_name with preferred column(s) name_preferred.
Comment:	Please select a lab test name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided.
Database Table:	lab_test
Database Column:	name_reported
Database Column Type:	varchar(125)

Result Column labTests.txt : Result Value Reported	
Description:	The lab test result captures the assayed value for a sample and can include letters, numbers and greater than or less than symbols.
Required:	Yes
Lookup:	None
Comment:	The lab test result captures the assayed value.
Database Table:	lab_test
Database Column:	result_value_reported

Database Column Type:	varchar(250)

Result Column labTests.txt : Result Unit Reported	
Description:	The lab test result unit describes the unit for the lab test value.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_unit_of_measure with preferred column(s) unit_of_measure_preferred.
Comment:	The lab test result unit describes the unit for the lab test value.
Database Table:	lab_test
Database Column:	result_unit_reported
Database Column Type:	varchar(40)

40. **Mass_Spectrometry_Metabolomic_Results.txt**

The Metabolite Mass Spectrometry experiment sample template defines and annotates the assay results for a sample by linking sample, experiment, and results together. More than one intensity results per assayed sample.

Mass_Spectrometry_Metabolomic_Results.txt : Expsample ID	
Description:	The experiment sample identifier must be stored in ImmPort or in the experimentsamples.txt template.
Required:	Yes
Lookup:	None
Comment:	Please enter either an experiment sample user defined ID or ImmPort accession.
Database Table:	mass_spectrometry_result And expsample_2_file_info
Database Column:	expsample_accession
Database Column Type:	varchar(15)

Mass_Spectrometry_Metabolomic_Results.txt : Intensity	
Description:	The intensity of the mass spectrometry result.
Required:	Yes
Lookup:	None
Comment:	The intensity of the mass spectrometry result.
Database Table:	mass_spectrometry_result
Database Column:	intensity
Database Column Type:	float

Mass_Spectrometry_Metabolomic_Results.txt : Retention Time	
Description:	The retention time of the mass spectrometry result.

Required:	Yes
Lookup:	None
Comment:	The retention time of the mass spectrometry result.
Database Table:	mass_spectrometry_result
Database Column:	retention_time
Database Column Type:	float

Mass_Spectrometry_Metabolomic_Results.txt : Retention Time Unit	
Description:	The unit of time for the the retention time of the mass spectrometry result. Please select a time unit name from the list provided.
Required:	Yes
Controlled Lookup:	Please refer to Appendix A - lk_time_unit.
Comment:	The unit of time for the the retention time of the mass spectrometry result. Please select a time unit name from the list provided.
Database Table:	mass_spectrometry_result
Database Column:	retention_time_unit
Database Column Type:	varchar(25)

Mass_Spectrometry_Metabolomic_Results.txt : M/Z Ratio	
Description:	The ratio of mass to Z charge.
Required:	Yes
Lookup:	None
Comment:	The ratio of mass to Z charge.
Database Table:	mass_spectrometry_result

Database Column:	m_z_ratio
Database Column Type:	float

Mass_Spectrometry_Metabolomic_Results.txt : Z (Charge)	
Description:	The Z charge of the mass spectrometry result.
Required:	Yes
Lookup:	None
Comment:	The Z charge of the mass spectrometry result.
Database Table:	mass_spectrometry_result
Database Column:	z_charge
Database Column Type:	varchar(50)

Mass_Spectrometry_Metabolomic_Results.txt : Database ID Reported	
Description:	The Optional HMDB, PubChem, or RefMet ID associated with the result. Pick a value from the list if it fits the result.
Required:	No
Preferred Lookup:	Please refer to Appendix A - lk_hmdb with preferred column(s) metabolite_name and hmdb_id.
Comment:	The Optional Database ID (Human Metabalone Database (HMDB), PubChem, or RefMet ID) associated with the result. Pick a value from the list if it fits the result.
Database Table:	mass_spectrometry_result
Database Column:	database_id_reported
Database Column Type:	varchar(50)

Mass_Spectrometry_Metabolomic_Results.txt : Metabolite Name	
Description:	The Optional name of the reported metabolite used in the mass spectrometry.
Required:	No
Lookup:	None
Comment:	The Optional name of the reported metabolite used in the mass spectrometry.
Database Table:	mass_spectrometry_result
Database Column:	metabolite_name_reported
Database Column Type:	varchar(255)

Mass_Spectrometry_Metabolomic_Results.txt : Comments	
Description:	Comments captures additional descriptive information that is added to the result.
Required:	No
Lookup:	None
Comment:	Comments captures additional descriptive information that is added to the result.
Database Table:	mass_spectrometry_result
Database Column:	comments
Database Column Type:	varchar(500)

41. **Mass_Spectrometry_Proteomic_Results.txt**

The Protein Mass Spectrometry experiment sample template defines and annotates the assay results for a sample by linking sample, experiment, and results together. More than one intensity results per assayed sample.

Mass_Spectrometry_Proteomic_Results.txt : Expsample ID	
Description:	The experiment sample identifier must be stored in ImmPort or in the experimentsamples.txt template.
Required:	Yes
Lookup:	None
Comment:	Please enter either an experiment sample user defined ID or ImmPort accession.
Database Table:	mass_spectrometry_result And expsample_2_file_info
Database Column:	expsample_accession
Database Column Type:	varchar(15)

Mass_Spectrometry_Proteomic_Results.txt : Intensity	
Description:	The intensity of the mass spectrometry result.
Required:	Yes
Lookup:	None
Comment:	The intensity of the mass spectrometry result.
Database Table:	mass_spectrometry_result
Database Column:	intensity
Database Column Type:	float

Mass_Spectrometry_Proteomic_Results.txt : Protein Name Reported

Description:	The Name of the protein reported. Choose from a pick list of triples: (Gene Name, UniProt ID, Primary Protein Accession) as defined by UNIPROT if it matches your protein, otherwise provide your own Protein Accession Name.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_protein_name with preferred column(s) uniprot_gene_name and uniprot_id and protein_name_preferred.
Comment:	The Name of the protein reported. Choose from a pick list of triples: (Gene Name, UniProt ID, Primary Protein Accession) as defined by UNIPROT if it matches your protein, otherwise provide your own Protein Accession Name.
Database Table:	mass_spectrometry_result
Database Column:	protein_name_reported
Database Column Type:	varchar(255)

Mass_Spectrometry_Proteomic_Results.txt : Comments	
Description:	Comments captures additional descriptive information that is added to the result.
Required:	No
Lookup:	None
Comment:	Comments captures additional descriptive information that is added to the result.
Database Table:	mass_spectrometry_result
Database Column:	comments
Database Column Type:	varchar(500)

42. **MBAA_Results.txt**

The MBAA experiment sample template defines and annotates the assay results for a sample by linking sample, experiment, and results together.

MBAA_Results.txt : Source ID	
Description:	The source ID is defined in the corresponding ImmPort template.
Required:	No
Lookup:	None
Comment:	The source ID for the assay result is either an experiment sample, a control sample, or a standard curve.

MBAA_Results.txt : Source Type	
Description:	The source type is either an experiment sample, control sample or standard curve.
Required:	Yes
Controlled Lookup:	Please refer to Appendix A - lk_source_type.
Comment:	Please choose from the drop down list.
Database Table:	mbaa_result
Database Column:	source_type
Database Column Type:	varchar(30)

MBAA_Results.txt : Assay ID	
Description:	The assay ID represents the plate or array ID where standard curves, control samples, and experiment samples were collected and assayed. This ID will be used to link standard curves, control samples, and experiment samples results.
Required:	Yes
Lookup:	None

Comment:	The assay ID represents the plate or array ID where standard curves, control samples, and experiment samples were collected and assayed. This ID will be used to link standard curves, control samples, and experiment samples results.
Database Table:	mbaa_result
Database Column:	assay_id
Database Column Type:	varchar(100)

MBAA_Results.txt : Assay Group ID	
Description:	The assay group ID represents a collection of plates or arrays. This ID may be used to link collections of standard curves, control samples, and experiment samples results.
Required:	No
Lookup:	None
Comment:	The assay group ID represents a collection of plates or arrays. This ID may be used to link collections of standard curves, control samples, and experiment samples results.
Database Table:	mbaa_result
Database Column:	assay_group_id
Database Column Type:	varchar(100)

MBAA_Results.txt : Analyte Reported	
Description:	The analyte describes what is being measured in an assay. The list of values displays common immunology gene symbol and gene symbol terms on the left and their preferred term on the right, each component separated by a semi-colon. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_analyte with preferred column(s) immunology_symbol and short_label and analyte_preferred.

Comment:	The analyte is the target (e.g protein, DNA, RNA) that is being assayed by the reagent. The list of values displays common immunology gene symbol and gene symbol terms on the left and their preferred term on the right, each component separated by a semi-colon. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Database Table:	mbaa_result
Database Column:	analyte_reported
Database Column Type:	varchar(100)

MBAA_Results.txt : MFI	
Description:	Mean Fluorescence Intensity
Required:	Yes
Lookup:	None
Comment:	Mean Fluorescence Intensity
Database Table:	mbaa_result
Database Column:	mfi
Database Column Type:	varchar(100)

MBAA_Results.txt : Concentration Value Reported	
Description:	The reported concentration value of the standard curve sample or calculated from the MFI using the standard curve.
Required:	Yes
Lookup:	None
Comment:	A number is expected.
Database Table:	mbaa_result

Database Column:	concentration_value_reported
Database Column Type:	varchar(100)

MBAA_Results.txt : Concentration Unit Reported	
Description:	The concentration unit of the standard curve sample or calculated from the MFI using the standard curve
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_concentration_unit with preferred column(s) concentration_unit_preferred.
Comment:	The concentration unit of the standard curve sample or calculated from the MFI using the standard curve.
Database Table:	mbaa_result
Database Column:	concentration_unit_reported
Database Column Type:	varchar(100)

MBAA_Results.txt : MFI Coordinate	
Description:	The position on the assay plate.
Required:	No
Lookup:	None
Comment:	The position on the assay plate.
Database Table:	mbaa_result
Database Column:	mfi_coordinate
Database Column Type:	varchar(100)

MBAA_Results.txt : Comments	
Description:	Additional descriptive information.
Required:	No
Lookup:	None
Comment:	Additional descriptive information.
Database Table:	mbaa_result
Database Column:	comments
Database Column Type:	varchar(500)

43. **PCR_Results.txt**

The qRT-PCR experiment sample template defines and annotates the assay results for a sample by linking sample, experiment, and results together. More than one analyte's results per assayed sample may be reported by copying at least the group of columns 'Entrez Gene ID' and 'Threshold Cycles(ct)' needed to describe each assay result.

PCR_Results.txt : Expsample ID	
Description:	The experiment sample identifier must be stored in ImmPort or in the experimentsamples.txt template.
Required:	Yes
Lookup:	None
Comment:	Please enter either an experiment sample user defined ID or ImmPort accession.
Database Table:	pcr_result And expsample_2_file_info
Database Column:	expsample_accession
Database Column Type:	varchar(15)

PCR_Results.txt : Gene Symbol Name	
Description:	The NCBI Gene symbol for the gene being assayed. Please select a gene symbol from the list provided if the gene symbol matches your symbol or enter a symbol if there is not an appropriate one provided. This symbol is visible when the result is shared. If the gene symbol is a NCBI Gene Symbol that is provided in the list, then the columns 'Gene Name' and 'Gene ID' will also be overwritten by the gene name and Entrez Gene ID provided by NCBI.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_analyte with preferred column(s) immunology_symbol and short_label and analyte_preferred.
Comment:	The NCBI Gene symbol for the gene being assayed. Please select a gene symbol from the list provided if the gene symbol matches your symbol or enter a symbol if there is not an appropriate one provided. This symbol is visible when the result is shared.

PCR_Results.txt : Value Reported

Description:	This value could be absolute or relative. For example, an absolute expression value could be 6 ng RNA/mg intestine. In this case, 6 should be entered in the 'Expression value of target RNA' column, while ng RNA/ mg intestine is in the 'Expression unit of target RNA' column. A relative expression value, like signal versus GAPDH, could be 2.07. In this case, 2.07 should be in the 'Expression value of target RNA' column, while relative to GAPDH is in the 'Expression unit of target RNA' column.
Required:	Yes
Lookup:	None
Comment:	A number is expected.
Database Table:	pcr_result
Database Column:	value_reported
Database Column Type:	varchar(50)

PCR_Results.txt : Unit Reported	
Description:	The unit for the Expression Value Of Target Nucleic ACID. Please select a unit from the list provided if the unit matches your unit or enter a unit if there is not an appropriate one provided.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_pcr_expression_unit with preferred column(s) expression_unit_preferred.
Comment:	The unit for the Expression Value Of Target Nucleic ACID. Please select a unit from the list provided if the unit matches your unit or enter a unit if there is not an appropriate one provided.
Database Table:	pcr_result
Database Column:	unit_reported
Database Column Type:	varchar(200)

PCR_Results.txt : Gene ID	
Description:	The NCBI Gene ID for the gene being assayed. A number is expected.

Required:	No
Lookup:	None
Comment:	A number is expected.
Database Table:	pcr_result
Database Column:	gene_id
Database Column Type:	varchar(10)

PCR_Results.txt : Gene Name	
Description:	The NCBI Gene name for the gene being assayed.
Required:	No
Lookup:	None
Comment:	The NCBI Gene name for the gene being assayed.
Database Table:	pcr_result
Database Column:	gene_name
Database Column Type:	varchar(4000)

PCR_Results.txt : Other Gene Accession	
Description:	Additional identifier(s) for the gene being assayed.
Required:	No
Lookup:	None
Comment:	Additional identifier(s) for the gene being assayed.
Database Table:	pcr_result
Database Column:	other_gene_accession

Database Column Type:	varchar(250)

PCR_Results.txt : Comments	
Description:	Comments captures additional descriptive information.
Required:	No
Lookup:	None
Comment:	Comments captures additional descriptive information.
Database Table:	pcr_result
Database Column:	comments
Database Column Type:	varchar(500)

44. **protocols.txt**

The protocol template defines and annotates protocol documents that are to be linked to study, subjects, biological samples or experiments.

protocols.txt : User Defined ID	
Description:	The protocol user defined ID is an identifier chosen by the data provider to refer to a protocol document. This ID may be referenced by other data records (e.g. study). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	protocol
Database Column:	user_defined_id
Database Column Type:	varchar(100)

protocols.txt : File Name	
Description:	The protocol file name in this column must be an exact spelling match to a file in the ZIP archive that is uploaded. This includes the file extensions which may be hidden depending upon your computer's settings. The file size name limit is 240 characters.
Required:	Yes
Lookup:	None
Comment:	The protocol file name is the document uploaded and linked to the protocol ID. The file name must be an exact spelling match including the file extension. The file size name limit is 240 characters.
Database Table:	protocol
Database Column:	file_name
Database Column Type:	varchar(250)

protocols.txt : Name	
Description:	The protocol name is not referenced by other data records.
Required:	Yes
Lookup:	None
Comment:	The protocol name is an alternate identifier that is visible when the protocol is shared.
Database Table:	protocol
Database Column:	name
Database Column Type:	varchar(250)

protocols.txt : Type	
Description:	The protocol type uses a preferred list of terms to characterize the protocol's content.
Required:	Yes
Controlled Lookup:	Please refer to Appendix A - lk_protocol_type.
Comment:	The protocol type is chosen from a list of preferred terms.
Database Table:	protocol
Database Column:	type
Database Column Type:	varchar(100)

protocols.txt : Description	
Description:	The summary is a brief description of the protocol's content.
Required:	No
Lookup:	None

Comment:	The protocol summary describes the purpose of the protocol.
Database Table:	protocol
Database Column:	description
Database Column Type:	varchar(4000)

45. **publicRepositories.txt**

The public repository template allows one or more public repository accession(s) and name(s) to be assigned to an experiment sample.

publicRepositories.txt : Expsample ID	
Description:	The experiment sample user defined ID is an identifier chosen by the data provider to refer to this sample. This ID may be referenced by other data records (e.g. assay results). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	expsample_public_repository
Database Column:	expsample_accession
Database Column Type:	varchar(15)

publicRepositories.txt : Repository Name	
Description:	ImmPort expects array gene expression results to be deposited in NCBI GEO since this is a prerequisite for publication. Please choose this repository name from the list.
Required:	Yes
Controlled Lookup:	Please refer to Appendix A - lk_public_repository.
Comment:	Array gene expression results are expected to be deposited in NCBI GEO Please choose this repository name from the list.
Database Table:	expsample_public_repository
Database Column:	repository_name
Database Column Type:	varchar(50)

publicRepositories.txt : Repository Accession	
Description:	The public repository accession should be the most granular or highest resolution provided (e.g. sample level accession, not sample group accession).
Required:	Yes
Lookup:	None
Comment:	Enter the accession that links to the assay result file(s).
Database Table:	expsample_public_repository
Database Column:	repository_accession
Database Column Type:	varchar(20)

46. **Reagent_Sets.txt**

The reagent set template defines and annotates the groups of reagents that are used together in assays such as flow cytometry panels, or multiplex ELISA assays. This template is optional.

Reagent_Sets.txt : User Defined ID	
Description:	The reagent user defined ID is an identifier chosen by the data provider to refer to an assay reagent. The nature of the assay reagent is assay specific and may be an array, an antibody or a typing kit. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	reagent
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Reagent_Sets.txt : Reagent ID(s)	
Description:	The individual reagents are defined in assay specific reagent templates (e.g. flow cytometry, ELISA). The data provider may define a set or panel of reagents used in a single assay (e.g a panel of fluorochrome conjugated monoclonal antibodies).
Required:	Yes
Lookup:	None
Comment:	Provide a list of individual reagents that comprise the reagent set. Separate the individual reagent IDs with a semi-colon.
Database Table:	reagent_set_2_reagent
Database Column:	reagent_accession
Database Column Type:	varchar(15)

Reagent_Sets.txt : Description	
Description:	The assay reagent description provides further details on the nature and purpose of the reagent.
Required:	Yes
Lookup:	None
Comment:	A supplemental description of the assay reagent that expands on its Name and User Defined ID.
Database Table:	reagent
Database Column:	description
Database Column Type:	varchar(4000)

Reagent_Sets.txt : Name	
Description:	The reagent name is not referenced by other data records.
Required:	Yes
Lookup:	None
Comment:	The reagent name is an alternate ID that is shared.
Database Table:	reagent
Database Column:	name
Database Column Type:	varchar(200)

Reagent_Sets.txt : Type	
Description:	The reagent set type indicates the assay type with which the reagent set is used.
Required:	Yes

Controlled Lookup:	Please refer to Appendix A - lk_reagent_type.
Comment:	Choose from a list of preferred assay types.
Database Table:	reagent
Database Column:	type
Database Column Type:	varchar(50)

47. **reagents.Array.txt**

The array reagent template defines and annotates microarrays assay platforms.

reagents.Array.txt : User Defined ID	
Description:	The reagent user defined ID is an identifier chosen by the data provider to refer to an assay reagent. The nature of the assay reagent is assay specific and may be an array, an antibody or a typing kit. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	reagent
Database Column:	user_defined_id
Database Column Type:	varchar(100)

reagents.Array.txt : Name	
Description:	The reagent name is not referenced by other data records.
Required:	No
Lookup:	None
Comment:	The reagent name is an alternate ID that is shared.
Database Table:	reagent
Database Column:	name
Database Column Type:	varchar(200)

reagents.Array.txt : Description

Description:	The assay reagent description provides further details on the nature and purpose of the reagent.
Required:	No
Lookup:	None
Comment:	A supplemental description of the assay reagent that expands on its Name and User Defined ID.
Database Table:	reagent
Database Column:	description
Database Column Type:	varchar(4000)

reagents.Array.txt : Manufacturer	
Description:	The source of a reagent may be important for evaluating assay results.
Required:	Yes
Lookup:	None
Comment:	The manufacturer is the source of a reagent and may include commercial vendors as well as non-commercial sources (e.g. collaborating labs).
Database Table:	reagent
Database Column:	manufacturer
Database Column Type:	varchar(100)

reagents.Array.txt : Catalog Number	
Description:	The reagent's catalog ID provides a reference to the reagent source and description.
Required:	Yes
Lookup:	None

Comment:	If the assay reagent is a commercial product, enter the vendor's catalog identifier. If the reagent is a custom preparation enter 'NA'.
Database Table:	reagent
Database Column:	catalog_number
Database Column Type:	varchar(250)

reagents.Array.txt : Lot Number	
Description:	The lot number is helpful to understand possible batch specific differences in assay results.
Required:	No
Lookup:	None
Comment:	The lot number is often provided by a reagent source when the reagent is replenished over time.
Database Table:	reagent
Database Column:	lot_number
Database Column Type:	varchar(250)

reagents.Array.txt : Weblink	
Description:	The web link is often the vendor's web site.
Required:	No
Lookup:	None
Comment:	An internet address that may provide details of an assay reagent.
Database Table:	reagent
Database Column:	weblink

Database Column Type:	varchar(250)

reagents.Array.txt : Contact	
Description:	If the reagent is from a non-commercial source, the contact information should indicate with whom to communicate to get further details.
Required:	No
Lookup:	None
Comment:	The contact information is particularly helpful when the reagent is not from a commercial vendor.
Database Table:	reagent
Database Column:	contact
Database Column Type:	varchar(1000)

48. **reagents.CyTOF.txt**

The mass cytometry reagent template defines and annotates the mass tagged antibody reagents used for CyTOF.

reagents.CyTOF.txt : User Defined ID	
Description:	The reagent user defined ID is an identifier chosen by the data provider to refer to an assay reagent. The nature of the assay reagent is assay specific and may be an array, an antibody or a typing kit. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	reagent
Database Column:	user_defined_id
Database Column Type:	varchar(100)

reagents.CyTOF.txt : Name	
Description:	The reagent name is not referenced by other data records.
Required:	No
Lookup:	None
Comment:	The reagent name is an alternate ID that is shared.
Database Table:	reagent
Database Column:	name
Database Column Type:	varchar(200)

reagents.CyTOF.txt : Description

Description:	The assay reagent description provides further details on the nature and purpose of the reagent.
Required:	No
Lookup:	None
Comment:	A supplemental description of the assay reagent that expands on its Name and User Defined ID.
Database Table:	reagent
Database Column:	description
Database Column Type:	varchar(4000)

reagents.CyTOF.txt : Manufacturer	
Description:	The source of a reagent may be important for evaluating assay results.
Required:	Yes
Lookup:	None
Comment:	The manufacturer is the source of a reagent and may include commercial vendors as well as non-commercial sources (e.g. collaborating labs).
Database Table:	reagent
Database Column:	manufacturer
Database Column Type:	varchar(100)

reagents.CyTOF.txt : Catalog Number	
Description:	The reagent's catalog ID provides a reference to the reagent source and description.
Required:	Yes
Lookup:	None

Comment:	If the assay reagent is a commercial product, enter the vendor's catalog identifier. If the reagent is a custom preparation enter 'NA'.
Database Table:	reagent
Database Column:	catalog_number
Database Column Type:	varchar(250)

reagents.CyTOF.txt : Lot Number	
Description:	The lot number is helpful to understand possible batch specific differences in assay results.
Required:	No
Lookup:	None
Comment:	The lot number is often provided by a reagent source when the reagent is replenished over time.
Database Table:	reagent
Database Column:	lot_number
Database Column Type:	varchar(250)

reagents.CyTOF.txt : Weblink	
Description:	The web link is often the vendor's web site.
Required:	No
Lookup:	None
Comment:	An internet address that may provide details of an assay reagent.
Database Table:	reagent
Database Column:	weblink

Database Column Type:	varchar(250)

reagents.CyTOF.txt : Contact	
Description:	If the reagent is from a non-commercial source, the contact information should indicate with whom to communicate to get further details.
Required:	No
Lookup:	None
Comment:	The contact information is particularly helpful when the reagent is not from a commercial vendor.
Database Table:	reagent
Database Column:	contact
Database Column Type:	varchar(1000)

reagents.CyTOF.txt : Analyte Reported	
Description:	The analyte describes what is being measured in an assay. The list of values displays common immunology gene symbol and gene symbol terms on the left and their preferred term on the right, each component separated by a semi-colon. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_analyte with preferred column(s) immunology_symbol and short_label and analyte_preferred.
Comment:	The analyte is the target (e.g protein, DNA, RNA) that is being assayed by the reagent. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Database Table:	reagent
Database Column:	analyte_reported

Database Column Type:	varchar(200)

reagents.CyTOF.txt : Antibody Registry ID	
Description:	This is the description of the field Antibody Registry ID. Please refer to the user guide for more description. This description can also be found in the user document
Required:	No
Lookup:	None
Comment:	The identifier assigned by the Antibody Registry to the antibody reagent. http://antibodyregistry.org/
Database Table:	reagent
Database Column:	antibody_registry_id
Database Column Type:	varchar(250)

reagents.CyTOF.txt : Clone Name	
Description:	Mass cytometry reagents often consist of a monoclonal antibody linked to a isotope and the antibody binds to the target analyte.
Required:	Yes
Lookup:	None
Comment:	The detector in mass cytometry reagents is often a monoclonal antibody conjugated to an isotope. When there is no antibody in the reagent, enter 'NA'.
Database Table:	reagent
Database Column:	clone_name
Database Column Type:	varchar(200)

reagents.CyTOF.txt : Reporter Name	
Description:	Mass cytometry reagents often consist of a monoclonal antibody linked to an isotope and the isotope provides the signal for the mass spectrometer's detectors.
Required:	Yes
Lookup:	None
Comment:	The reporter in a mass cytometry reagent is the isotope linked to an antibody.
Database Table:	reagent
Database Column:	reporter_name
Database Column Type:	varchar(200)

49. **reagents.ELISA.txt**

The ELISA reagent template defines and annotates the antibody reagents assay platforms for ELISA.

reagents.ELISA.txt : User Defined ID	
Description:	The reagent user defined ID is an identifier chosen by the data provider to refer to an assay reagent. The nature of the assay reagent is assay specific and may be an array, an antibody or a typing kit. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	reagent
Database Column:	user_defined_id
Database Column Type:	varchar(100)

reagents.ELISA.txt : Name	
Description:	The reagent name is not referenced by other data records.
Required:	No
Lookup:	None
Comment:	The reagent name is an alternate ID that is shared.
Database Table:	reagent
Database Column:	name
Database Column Type:	varchar(200)

reagents.ELISA.txt : Description

Description:	The assay reagent description provides further details on the nature and purpose of the reagent.
Required:	No
Lookup:	None
Comment:	A supplemental description of the assay reagent that expands on its Name and User Defined ID.
Database Table:	reagent
Database Column:	description
Database Column Type:	varchar(4000)

reagents.ELISA.txt : Manufacturer	
Description:	The source of a reagent may be important for evaluating assay results.
Required:	Yes
Lookup:	None
Comment:	The manufacturer is the source of a reagent and may include commercial vendors as well as non-commercial sources (e.g. collaborating labs).
Database Table:	reagent
Database Column:	manufacturer
Database Column Type:	varchar(100)

reagents.ELISA.txt : Catalog Number	
Description:	The reagent's catalog ID provides a reference to the reagent source and description.
Required:	Yes
Lookup:	None

Comment:	If the assay reagent is a commercial product, enter the vendor's catalog identifier. If the reagent is a custom preparation enter 'NA'.
Database Table:	reagent
Database Column:	catalog_number
Database Column Type:	varchar(250)

reagents.ELISA.txt : Lot Number	
Description:	The lot number is helpful to understand possible batch specific differences in assay results.
Required:	No
Lookup:	None
Comment:	The lot number is often provided by a reagent source when the reagent is replenished over time.
Database Table:	reagent
Database Column:	lot_number
Database Column Type:	varchar(250)

reagents.ELISA.txt : Weblink	
Description:	The web link is often the vendor's web site.
Required:	No
Lookup:	None
Comment:	An internet address that may provide details of an assay reagent.
Database Table:	reagent
Database Column:	weblink

Database Column Type:	varchar(250)

reagents.ELISA.txt : Contact	
Description:	If the reagent is from a non-commercial source, the contact information should indicate with whom to communicate to get further details.
Required:	No
Lookup:	None
Comment:	The contact information is particularly helpful when the reagent is not from a commercial vendor.
Database Table:	reagent
Database Column:	contact
Database Column Type:	varchar(1000)

reagents.ELISA.txt : Analyte Reported	
Description:	The analyte describes what is being measured in an assay. The list of values displays common immunology gene symbol and gene symbol terms on the left and their preferred term on the right, each component separated by a semi-colon. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_analyte with preferred column(s) immunology_symbol and short_label and analyte_preferred.
Comment:	The analyte is the target (e.g protein, DNA, RNA) that is being assayed by the reagent. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Database Table:	reagent
Database Column:	analyte_reported

Database Column Type:	varchar(200)

reagents.ELISA.txt : Antibody Registry ID	
Description:	
Required:	No
Lookup:	None
Comment:	The identifier assigned by the Antibody Registry to the antibody reagent. http://antibodyregistry.org/
Database Table:	reagent
Database Column:	antibody_registry_id
Database Column Type:	varchar(250)

50. **reagents.ELISPOT.txt**

The ELISPOT reagent template defines and annotates the antibody reagents assay platforms for ELISPOT.

reagents.ELISPOT.txt : User Defined ID	
Description:	The reagent user defined ID is an identifier chosen by the data provider to refer to an assay reagent. The nature of the assay reagent is assay specific and may be an array, an antibody or a typing kit. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	reagent
Database Column:	user_defined_id
Database Column Type:	varchar(100)

reagents.ELISPOT.txt : Name	
Description:	The reagent name is not referenced by other data records.
Required:	No
Lookup:	None
Comment:	The reagent name is an alternate ID that is shared.
Database Table:	reagent
Database Column:	name
Database Column Type:	varchar(200)

reagents.ELISPOT.txt : Description

Description:	The assay reagent description provides further details on the nature and purpose of the reagent.
Required:	No
Lookup:	None
Comment:	A supplemental description of the assay reagent that expands on its Name and User Defined ID.
Database Table:	reagent
Database Column:	description
Database Column Type:	varchar(4000)

reagents.ELISPOT.txt : Manufacturer	
Description:	The source of a reagent may be important for evaluating assay results.
Required:	Yes
Lookup:	None
Comment:	The manufacturer is the source of a reagent and may include commercial vendors as well as non-commercial sources (e.g. collaborating labs).
Database Table:	reagent
Database Column:	manufacturer
Database Column Type:	varchar(100)

reagents.ELISPOT.txt : Catalog Number	
Description:	The reagent's catalog ID provides a reference to the reagent source and description.
Required:	Yes
Lookup:	None

Comment:	If the assay reagent is a commercial product, enter the vendor's catalog identifier. If the reagent is a custom preparation enter 'NA'.
Database Table:	reagent
Database Column:	catalog_number
Database Column Type:	varchar(250)

reagents.ELISPOT.txt : Lot Number	
Description:	The lot number is helpful to understand possible batch specific differences in assay results.
Required:	No
Lookup:	None
Comment:	The lot number is often provided by a reagent source when the reagent is replenished over time.
Database Table:	reagent
Database Column:	lot_number
Database Column Type:	varchar(250)

reagents.ELISPOT.txt : Weblink	
Description:	The web link is often the vendor's web site.
Required:	No
Lookup:	None
Comment:	An internet address that may provide details of an assay reagent.
Database Table:	reagent
Database Column:	weblink

Database Column Type:	varchar(250)

reagents.ELISPOT.txt : Contact	
Description:	If the reagent is from a non-commercial source, the contact information should indicate with whom to communicate to get further details.
Required:	No
Lookup:	None
Comment:	The contact information is particularly helpful when the reagent is not from a commercial vendor.
Database Table:	reagent
Database Column:	contact
Database Column Type:	varchar(1000)

reagents.ELISPOT.txt : Analyte Reported	
Description:	The analyte describes what is being measured in an assay. The list of values displays common immunology gene symbol and gene symbol terms on the left and their preferred term on the right, each component separated by a semi-colon. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_analyte with preferred column(s) immunology_symbol and short_label and analyte_preferred.
Comment:	The analyte is the target (e.g protein, DNA, RNA) that is being assayed by the reagent. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Database Table:	reagent
Database Column:	analyte_reported

Database Column Type:	varchar(200)

reagents.ELISPOT.txt : Antibody Registry ID	
Description:	
Required:	No
Lookup:	None
Comment:	The identifier assigned by the Antibody Registry to the antibody reagent. http://antibodyregistry.org/
Database Table:	reagent
Database Column:	antibody_registry_id
Database Column Type:	varchar(250)

51. **reagents.Flow_Cytometry.txt**

The flow cytometry reagent template defines and annotates the antibody reagents used for flow cytometry.

reagents.Flow_Cytometry.txt : User Defined ID	
Description:	The reagent user defined ID is an identifier chosen by the data provider to refer to an assay reagent. The nature of the assay reagent is assay specific and may be an array, an antibody or a typing kit. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	reagent
Database Column:	user_defined_id
Database Column Type:	varchar(100)

reagents.Flow_Cytometry.txt : Name	
Description:	The reagent name is not referenced by other data records.
Required:	No
Lookup:	None
Comment:	The reagent name is an alternate ID that is shared.
Database Table:	reagent
Database Column:	name
Database Column Type:	varchar(200)

reagents.Flow_Cytometry.txt : Description

Description:	The assay reagent description provides further details on the nature and purpose of the reagent.
Required:	No
Lookup:	None
Comment:	A supplemental description of the assay reagent that expands on its Name and User Defined ID.
Database Table:	reagent
Database Column:	description
Database Column Type:	varchar(4000)

reagents.Flow_Cytometry.txt : Manufacturer	
Description:	The source of a reagent may be important for evaluating assay results.
Required:	Yes
Lookup:	None
Comment:	The manufacturer is the source of a reagent and may include commercial vendors as well as non-commercial sources (e.g. collaborating labs).
Database Table:	reagent
Database Column:	manufacturer
Database Column Type:	varchar(100)

reagents.Flow_Cytometry.txt : Catalog Number	
Description:	The reagent's catalog ID provides a reference to the reagent source and description.
Required:	Yes
Lookup:	None

Comment:	If the assay reagent is a commercial product, enter the vendor's catalog identifier. If the reagent is a custom preparation enter 'NA'.
Database Table:	reagent
Database Column:	catalog_number
Database Column Type:	varchar(250)

reagents.Flow_Cytometry.txt : Lot Number	
Description:	The lot number is helpful to understand possible batch specific differences in assay results.
Required:	No
Lookup:	None
Comment:	The lot number is often provided by a reagent source when the reagent is replenished over time.
Database Table:	reagent
Database Column:	lot_number
Database Column Type:	varchar(250)

reagents.Flow_Cytometry.txt : Weblink	
Description:	The web link is often the vendor's web site.
Required:	No
Lookup:	None
Comment:	An internet address that may provide details of an assay reagent.
Database Table:	reagent
Database Column:	weblink

Database Column Type:	varchar(250)

reagents.Flow_Cytometry.txt : Contact	
Description:	If the reagent is from a non-commercial source, the contact information should indicate with whom to communicate to get further details.
Required:	No
Lookup:	None
Comment:	The contact information is particularly helpful when the reagent is not from a commercial vendor.
Database Table:	reagent
Database Column:	contact
Database Column Type:	varchar(1000)

reagents.Flow_Cytometry.txt : Analyte Reported	
Description:	The analyte describes what is being measured in an assay. The list of values displays common immunology gene symbol and gene symbol terms on the left and their preferred term on the right, each component separated by a semi-colon. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_analyte with preferred column(s) immunology_symbol and short_label and analyte_preferred.
Comment:	The analyte is the target (e.g protein, DNA, RNA) that is being assayed by the reagent. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Database Table:	reagent
Database Column:	analyte_reported

Database Column Type:	varchar(200)

reagents.Flow_Cytometry.txt : Antibody Registry ID	
Description:	This is the description of the field Antibody Registry ID. Please refer to the user guide for more description. This description can also be found in the user document
Required:	No
Lookup:	None
Comment:	The identifier assigned by the Antibody Registry to the antibody reagent. http://antibodyregistry.org/
Database Table:	reagent
Database Column:	antibody_registry_id
Database Column Type:	varchar(250)

reagents.Flow_Cytometry.txt : Clone Name	
Description:	Flow cytometry reagents often consist of a monoclonal antibody linked to a fluorescing compound and the antibody binds to the target analyte.
Required:	Yes
Lookup:	None
Comment:	The detector in flow cytometry reagents is often a monoclonal antibody conjugated to a fluorochrome. When there is no antibody in the reagent, enter 'NA'.
Database Table:	reagent
Database Column:	clone_name
Database Column Type:	varchar(200)

reagents.Flow_Cytometry.txt : Reporter Name	
Description:	Flow Cytometry reagents often consist of a monoclonal antibody linked to a fluorescing compound and the fluorochrome provides the signal for the cytometer's detectors.
Required:	Yes
Lookup:	None
Comment:	The reporter in a flow cytometry reagent is the fluorochrome linked to an antibody. When there is no antibody in the reagent, it is the fluorescing agent (e.g. CFSE).
Database Table:	reagent
Database Column:	reporter_name
Database Column Type:	varchar(200)

52. **reagents.HAI.txt**

The HAI reagent template defines and annotates reagents for hemagglutination inhibition assays. These include the cell type used. The viral stain and concentration would be defined in the treatments.txt template.

reagents.HAI.txt : User Defined ID	
Description:	The reagent user defined ID is an identifier chosen by the data provider to refer to an assay reagent. The nature of the assay reagent is assay specific and may be an array, an antibody or a typing kit. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	reagent
Database Column:	user_defined_id
Database Column Type:	varchar(100)

reagents.HAI.txt : Name	
Description:	The reagent name is not referenced by other data records.
Required:	No
Lookup:	None
Comment:	The reagent name is an alternate ID that is shared.
Database Table:	reagent
Database Column:	name
Database Column Type:	varchar(200)

reagents.HAI.txt : Description

Description:	The assay reagent description provides further details on the nature and purpose of the reagent.
Required:	No
Lookup:	None
Comment:	A supplemental description of the assay reagent that expands on its Name and User Defined ID.
Database Table:	reagent
Database Column:	description
Database Column Type:	varchar(4000)

reagents.HAI.txt : Manufacturer	
Description:	The source of a reagent may be important for evaluating assay results.
Required:	Yes
Lookup:	None
Comment:	The manufacturer is the source of a reagent and may include commercial vendors as well as non-commercial sources (e.g. collaborating labs).
Database Table:	reagent
Database Column:	manufacturer
Database Column Type:	varchar(100)

reagents.HAI.txt : Catalog Number	
Description:	The reagent's catalog ID provides a reference to the reagent source and description.
Required:	Yes
Lookup:	None

Comment:	If the assay reagent is a commercial product, enter the vendor's catalog identifier. If the reagent is a custom preparation enter 'NA'.
Database Table:	reagent
Database Column:	catalog_number
Database Column Type:	varchar(250)

reagents.HAI.txt : Lot Number	
Description:	The lot number is helpful to understand possible batch specific differences in assay results.
Required:	No
Lookup:	None
Comment:	The lot number is often provided by a reagent source when the reagent is replenished over time.
Database Table:	reagent
Database Column:	lot_number
Database Column Type:	varchar(250)

reagents.HAI.txt : Weblink	
Description:	The web link is often the vendor's web site.
Required:	No
Lookup:	None
Comment:	An internet address that may provide details of an assay reagent.
Database Table:	reagent
Database Column:	weblink

Database Column Type:	varchar(250)

reagents.HAI.txt : Contact	
Description:	If the reagent is from a non-commercial source, the contact information should indicate with whom to communicate to get further details.
Required:	No
Lookup:	None
Comment:	The contact information is particularly helpful when the reagent is not from a commercial vendor.
Database Table:	reagent
Database Column:	contact
Database Column Type:	varchar(1000)

53. **reagents.HLA_Typing.txt**

The HLA typing system reagents template defines and annotates the assay platforms for HLA typing. These reagents will be linked to HLA experiment sample records.

reagents.HLA_Typing.txt : User Defined ID	
Description:	The reagent user defined ID is an identifier chosen by the data provider to refer to an assay reagent. The nature of the assay reagent is assay specific and may be an array, an antibody or a typing kit. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	reagent
Database Column:	user_defined_id
Database Column Type:	varchar(100)

reagents.HLA_Typing.txt : Name	
Description:	The reagent name is not referenced by other data records.
Required:	No
Lookup:	None
Comment:	The reagent name is an alternate ID that is shared.
Database Table:	reagent
Database Column:	name
Database Column Type:	varchar(200)

reagents.HLA_Typing.txt : Description

Description:	The assay reagent description provides further details on the nature and purpose of the reagent.
Required:	No
Lookup:	None
Comment:	A supplemental description of the assay reagent that expands on its Name and User Defined ID.
Database Table:	reagent
Database Column:	description
Database Column Type:	varchar(4000)

reagents.HLA_Typing.txt : Manufacturer	
Description:	The source of a reagent may be important for evaluating assay results.
Required:	Yes
Lookup:	None
Comment:	The manufacturer is the source of a reagent and may include commercial vendors as well as non-commercial sources (e.g. collaborating labs).
Database Table:	reagent
Database Column:	manufacturer
Database Column Type:	varchar(100)

reagents.HLA_Typing.txt : Catalog Number	
Description:	The reagent's catalog ID provides a reference to the reagent source and description.
Required:	Yes
Lookup:	None

Comment:	If the assay reagent is a commercial product, enter the vendor's catalog identifier. If the reagent is a custom preparation enter 'NA'.
Database Table:	reagent
Database Column:	catalog_number
Database Column Type:	varchar(250)

reagents.HLA_Typing.txt : Lot Number	
Description:	The lot number is helpful to understand possible batch specific differences in assay results.
Required:	No
Lookup:	None
Comment:	The lot number is often provided by a reagent source when the reagent is replenished over time.
Database Table:	reagent
Database Column:	lot_number
Database Column Type:	varchar(250)

reagents.HLA_Typing.txt : Weblink	
Description:	The web link is often the vendor's web site.
Required:	No
Lookup:	None
Comment:	An internet address that may provide details of an assay reagent.
Database Table:	reagent
Database Column:	weblink

Database Column Type:	varchar(250)

reagents.HLA_Typing.txt : Contact	
Description:	If the reagent is from a non-commercial source, the contact information should indicate with whom to communicate to get further details.
Required:	No
Lookup:	None
Comment:	The contact information is particularly helpful when the reagent is not from a commercial vendor.
Database Table:	reagent
Database Column:	contact
Database Column Type:	varchar(1000)

54. **reagents.KIR_Typing.txt**

The KIR typing system reagents template defines and annotates the assay platforms for KIR typing. These reagents will be linked to KIR experiment sample records.

reagents.KIR_Typing.txt : User Defined ID	
Description:	The reagent user defined ID is an identifier chosen by the data provider to refer to an assay reagent. The nature of the assay reagent is assay specific and may be an array, an antibody or a typing kit. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	reagent
Database Column:	user_defined_id
Database Column Type:	varchar(100)

reagents.KIR_Typing.txt : Name	
Description:	The reagent name is not referenced by other data records.
Required:	No
Lookup:	None
Comment:	The reagent name is an alternate ID that is shared.
Database Table:	reagent
Database Column:	name
Database Column Type:	varchar(200)

reagents.KIR_Typing.txt : Description

Description:	The assay reagent description provides further details on the nature and purpose of the reagent.
Required:	No
Lookup:	None
Comment:	A supplemental description of the assay reagent that expands on its Name and User Defined ID.
Database Table:	reagent
Database Column:	description
Database Column Type:	varchar(4000)

reagents.KIR_Typing.txt : Manufacturer	
Description:	The source of a reagent may be important for evaluating assay results.
Required:	Yes
Lookup:	None
Comment:	The manufacturer is the source of a reagent and may include commercial vendors as well as non-commercial sources (e.g. collaborating labs).
Database Table:	reagent
Database Column:	manufacturer
Database Column Type:	varchar(100)

reagents.KIR_Typing.txt : Catalog Number	
Description:	The reagent's catalog ID provides a reference to the reagent source and description.
Required:	Yes
Lookup:	None

Comment:	If the assay reagent is a commercial product, enter the vendor's catalog identifier. If the reagent is a custom preparation enter 'NA'.
Database Table:	reagent
Database Column:	catalog_number
Database Column Type:	varchar(250)

reagents.KIR_Typing.txt : Lot Number	
Description:	The lot number is helpful to understand possible batch specific differences in assay results.
Required:	No
Lookup:	None
Comment:	The lot number is often provided by a reagent source when the reagent is replenished over time.
Database Table:	reagent
Database Column:	lot_number
Database Column Type:	varchar(250)

reagents.KIR_Typing.txt : Weblink	
Description:	The web link is often the vendor's web site.
Required:	No
Lookup:	None
Comment:	An internet address that may provide details of an assay reagent.
Database Table:	reagent
Database Column:	weblink

Database Column Type:	varchar(250)

reagents.KIR_Typing.txt : Contact	
Description:	If the reagent is from a non-commercial source, the contact information should indicate with whom to communicate to get further details.
Required:	No
Lookup:	None
Comment:	The contact information is particularly helpful when the reagent is not from a commercial vendor.
Database Table:	reagent
Database Column:	contact
Database Column Type:	varchar(1000)

55. **reagents.MBAA.txt**

The MBAA reagent template defines and annotates the assay platforms for MBAA. This should include a row for each of the analytes assayed by the MBAA array.

reagents.MBAA.txt : User Defined ID	
Description:	The reagent user defined ID is an identifier chosen by the data provider to refer to an assay reagent. The nature of the assay reagent is assay specific and may be an array, an antibody or a typing kit. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	reagent
Database Column:	user_defined_id
Database Column Type:	varchar(100)

reagents.MBAA.txt : Name	
Description:	The reagent name is not referenced by other data records.
Required:	No
Lookup:	None
Comment:	The reagent name is an alternate ID that is shared.
Database Table:	reagent
Database Column:	name
Database Column Type:	varchar(200)

reagents.MBAA.txt : Description

Description:	The assay reagent description provides further details on the nature and purpose of the reagent.
Required:	No
Lookup:	None
Comment:	A supplemental description of the assay reagent that expands on its Name and User Defined ID.
Database Table:	reagent
Database Column:	description
Database Column Type:	varchar(4000)

reagents.MBAA.txt : Manufacturer	
Description:	The source of a reagent may be important for evaluating assay results.
Required:	Yes
Lookup:	None
Comment:	The manufacturer is the source of a reagent and may include commercial vendors as well as non-commercial sources (e.g. collaborating labs).
Database Table:	reagent
Database Column:	manufacturer
Database Column Type:	varchar(100)

reagents.MBAA.txt : Catalog Number	
Description:	The reagent's catalog ID provides a reference to the reagent source and description.
Required:	Yes
Lookup:	None

Comment:	If the assay reagent is a commercial product, enter the vendor's catalog identifier. If the reagent is a custom preparation enter 'NA'.
Database Table:	reagent
Database Column:	catalog_number
Database Column Type:	varchar(250)

reagents.MBAA.txt : Lot Number	
Description:	The lot number is helpful to understand possible batch specific differences in assay results.
Required:	No
Lookup:	None
Comment:	The lot number is often provided by a reagent source when the reagent is replenished over time.
Database Table:	reagent
Database Column:	lot_number
Database Column Type:	varchar(250)

reagents.MBAA.txt : Weblink	
Description:	The web link is often the vendor's web site.
Required:	No
Lookup:	None
Comment:	An internet address that may provide details of an assay reagent.
Database Table:	reagent
Database Column:	weblink

Database Column Type:	varchar(250)

reagents.MBAA.txt : Contact	
Description:	If the reagent is from a non-commercial source, the contact information should indicate with whom to communicate to get further details.
Required:	No
Lookup:	None
Comment:	The contact information is particularly helpful when the reagent is not from a commercial vendor.
Database Table:	reagent
Database Column:	contact
Database Column Type:	varchar(1000)

reagents.MBAA.txt : Analyte Reported	
Description:	The analyte describes what is being measured in an assay. The list of values displays common immunology gene symbol and gene symbol terms on the left and their preferred term on the right, each component separated by a semi-colon. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_analyte with preferred column(s) immunology_symbol and short_label and analyte_preferred.
Comment:	The analyte is the target (e.g protein, DNA, RNA) that is being assayed by the reagent. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Database Table:	reagent
Database Column:	analyte_reported

Database Column Type:	varchar(200)

56. **reagents.Neutralizing_Antibody_Titer.txt**

The neutralizing antibody titer reagent template defines and annotates reagents used for neutralizing antibody titer including the cell types, and antibodies if an ELISA approach is employed.

reagents.Neutralizing_Antibody_Titer.txt : User Defined ID	
Description:	The reagent user defined ID is an identifier chosen by the data provider to refer to an assay reagent. The nature of the assay reagent is assay specific and may be an array, an antibody or a typing kit. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	reagent
Database Column:	user_defined_id
Database Column Type:	varchar(100)

reagents.Neutralizing_Antibody_Titer.txt : Name	
Description:	The reagent name is not referenced by other data records.
Required:	No
Lookup:	None
Comment:	The reagent name is an alternate ID that is shared.
Database Table:	reagent
Database Column:	name
Database Column Type:	varchar(200)

reagents.Neutralizing_Antibody_Titer.txt : Description

Description:	The assay reagent description provides further details on the nature and purpose of the reagent.
Required:	No
Lookup:	None
Comment:	A supplemental description of the assay reagent that expands on its Name and User Defined ID.
Database Table:	reagent
Database Column:	description
Database Column Type:	varchar(4000)

reagents.Neutralizing_Antibody_Titer.txt : Manufacturer	
Description:	The source of a reagent may be important for evaluating assay results.
Required:	Yes
Lookup:	None
Comment:	The manufacturer is the source of a reagent and may include commercial vendors as well as non-commercial sources (e.g. collaborating labs).
Database Table:	reagent
Database Column:	manufacturer
Database Column Type:	varchar(100)

reagents.Neutralizing_Antibody_Titer.txt : Catalog Number	
Description:	The reagent's catalog ID provides a reference to the reagent source and description.
Required:	Yes
Lookup:	None

Comment:	If the assay reagent is a commercial product, enter the vendor's catalog identifier. If the reagent is a custom preparation enter 'NA'.
Database Table:	reagent
Database Column:	catalog_number
Database Column Type:	varchar(250)

reagents.Neutralizing_Antibody_Titer.txt : Lot Number	
Description:	The lot number is helpful to understand possible batch specific differences in assay results.
Required:	No
Lookup:	None
Comment:	The lot number is often provided by a reagent source when the reagent is replenished over time.
Database Table:	reagent
Database Column:	lot_number
Database Column Type:	varchar(250)

reagents.Neutralizing_Antibody_Titer.txt : Weblink	
Description:	The web link is often the vendor's web site.
Required:	No
Lookup:	None
Comment:	An internet address that may provide details of an assay reagent.
Database Table:	reagent
Database Column:	weblink

Database Column Type:	varchar(250)

reagents.Neutralizing_Antibody_Titer.txt : Contact	
Description:	If the reagent is from a non-commercial source, the contact information should indicate with whom to communicate to get further details.
Required:	No
Lookup:	None
Comment:	The contact information is particularly helpful when the reagent is not from a commercial vendor.
Database Table:	reagent
Database Column:	contact
Database Column Type:	varchar(1000)

57. **reagents.Other.txt**

This reagent template is used to define and annotate reagents that are not described by other reagent templates.

reagents.Other.txt : User Defined ID	
Description:	The reagent user defined ID is an identifier chosen by the data provider to refer to an assay reagent. The nature of the assay reagent is assay specific and may be an array, an antibody or a typing kit. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	reagent
Database Column:	user_defined_id
Database Column Type:	varchar(100)

reagents.Other.txt : Name	
Description:	The reagent name is not referenced by other data records.
Required:	No
Lookup:	None
Comment:	The reagent name is an alternate ID that is shared.
Database Table:	reagent
Database Column:	name
Database Column Type:	varchar(200)

reagents.Other.txt : Description

Description:	The assay reagent description provides further details on the nature and purpose of the reagent.
Required:	No
Lookup:	None
Comment:	A supplemental description of the assay reagent that expands on its Name and User Defined ID.
Database Table:	reagent
Database Column:	description
Database Column Type:	varchar(4000)

reagents.Other.txt : Manufacturer	
Description:	The source of a reagent may be important for evaluating assay results.
Required:	Yes
Lookup:	None
Comment:	The manufacturer is the source of a reagent and may include commercial vendors as well as non-commercial sources (e.g. collaborating labs).
Database Table:	reagent
Database Column:	manufacturer
Database Column Type:	varchar(100)

reagents.Other.txt : Catalog Number	
Description:	The reagent's catalog ID provides a reference to the reagent source and description.
Required:	Yes
Lookup:	None

Comment:	If the assay reagent is a commercial product, enter the vendor's catalog identifier. If the reagent is a custom preparation enter 'NA'.
Database Table:	reagent
Database Column:	catalog_number
Database Column Type:	varchar(250)

reagents.Other.txt : Lot Number	
Description:	The lot number is helpful to understand possible batch specific differences in assay results.
Required:	No
Lookup:	None
Comment:	The lot number is often provided by a reagent source when the reagent is replenished over time.
Database Table:	reagent
Database Column:	lot_number
Database Column Type:	varchar(250)

reagents.Other.txt : Weblink	
Description:	The web link is often the vendor's web site.
Required:	No
Lookup:	None
Comment:	An internet address that may provide details of an assay reagent.
Database Table:	reagent
Database Column:	weblink

Database Column Type:	varchar(250)

reagents.Other.txt : Contact	
Description:	If the reagent is from a non-commercial source, the contact information should indicate with whom to communicate to get further details.
Required:	No
Lookup:	None
Comment:	The contact information is particularly helpful when the reagent is not from a commercial vendor.
Database Table:	reagent
Database Column:	contact
Database Column Type:	varchar(1000)

58. **reagents.PCR.txt**

The PCR reagent template defines and annotates the reagents used for PCR assays.

reagents.PCR.txt : User Defined ID	
Description:	The reagent user defined ID is an identifier chosen by the data provider to refer to an assay reagent. The nature of the assay reagent is assay specific and may be an array, an antibody or a typing kit. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	reagent
Database Column:	user_defined_id
Database Column Type:	varchar(100)

reagents.PCR.txt : Name	
Description:	The reagent name is not referenced by other data records.
Required:	No
Lookup:	None
Comment:	The reagent name is an alternate ID that is shared.
Database Table:	reagent
Database Column:	name
Database Column Type:	varchar(200)

reagents.PCR.txt : Description

Description:	The assay reagent description provides further details on the nature and purpose of the reagent.
Required:	No
Lookup:	None
Comment:	A supplemental description of the assay reagent that expands on its Name and User Defined ID.
Database Table:	reagent
Database Column:	description
Database Column Type:	varchar(4000)

reagents.PCR.txt : Manufacturer	
Description:	The source of a reagent may be important for evaluating assay results.
Required:	Yes
Lookup:	None
Comment:	The manufacturer is the source of a reagent and may include commercial vendors as well as non-commercial sources (e.g. collaborating labs).
Database Table:	reagent
Database Column:	manufacturer
Database Column Type:	varchar(100)

reagents.PCR.txt : Catalog Number	
Description:	The reagent's catalog ID provides a reference to the reagent source and description.
Required:	Yes
Lookup:	None

Comment:	If the assay reagent is a commercial product, enter the vendor's catalog identifier. If the reagent is a custom preparation enter 'NA'.
Database Table:	reagent
Database Column:	catalog_number
Database Column Type:	varchar(250)

reagents.PCR.txt : Lot Number	
Description:	The lot number is helpful to understand possible batch specific differences in assay results.
Required:	No
Lookup:	None
Comment:	The lot number is often provided by a reagent source when the reagent is replenished over time.
Database Table:	reagent
Database Column:	lot_number
Database Column Type:	varchar(250)

reagents.PCR.txt : Weblink	
Description:	The web link is often the vendor's web site.
Required:	No
Lookup:	None
Comment:	An internet address that may provide details of an assay reagent.
Database Table:	reagent
Database Column:	weblink

Database Column Type:	varchar(250)

reagents.PCR.txt : Contact	
Description:	If the reagent is from a non-commercial source, the contact information should indicate with whom to communicate to get further details.
Required:	No
Lookup:	None
Comment:	The contact information is particularly helpful when the reagent is not from a commercial vendor.
Database Table:	reagent
Database Column:	contact
Database Column Type:	varchar(1000)

59. **reagents.Sequencing.txt**

The sequencing reagent template defines and annotates the assay platforms used for sequencing.

reagents.Sequencing.txt : User Defined ID	
Description:	The reagent user defined ID is an identifier chosen by the data provider to refer to an assay reagent. The nature of the assay reagent is assay specific and may be an array, an antibody or a typing kit. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	reagent
Database Column:	user_defined_id
Database Column Type:	varchar(100)

reagents.Sequencing.txt : Name	
Description:	The reagent name is not referenced by other data records.
Required:	No
Lookup:	None
Comment:	The reagent name is an alternate ID that is shared.
Database Table:	reagent
Database Column:	name
Database Column Type:	varchar(200)

reagents.Sequencing.txt : Description

Description:	The assay reagent description provides further details on the nature and purpose of the reagent.
Required:	No
Lookup:	None
Comment:	A supplemental description of the assay reagent that expands on its Name and User Defined ID.
Database Table:	reagent
Database Column:	description
Database Column Type:	varchar(4000)

reagents.Sequencing.txt : Manufacturer	
Description:	The source of a reagent may be important for evaluating assay results.
Required:	Yes
Lookup:	None
Comment:	The manufacturer is the source of a reagent and may include commercial vendors as well as non-commercial sources (e.g. collaborating labs).
Database Table:	reagent
Database Column:	manufacturer
Database Column Type:	varchar(100)

reagents.Sequencing.txt : Catalog Number	
Description:	The reagent's catalog ID provides a reference to the reagent source and description.
Required:	Yes
Lookup:	None

Comment:	If the assay reagent is a commercial product, enter the vendor's catalog identifier. If the reagent is a custom preparation enter 'NA'.
Database Table:	reagent
Database Column:	catalog_number
Database Column Type:	varchar(250)

reagents.Sequencing.txt : Lot Number	
Description:	The lot number is helpful to understand possible batch specific differences in assay results.
Required:	No
Lookup:	None
Comment:	The lot number is often provided by a reagent source when the reagent is replenished over time.
Database Table:	reagent
Database Column:	lot_number
Database Column Type:	varchar(250)

reagents.Sequencing.txt : Weblink	
Description:	The web link is often the vendor's web site.
Required:	No
Lookup:	None
Comment:	An internet address that may provide details of an assay reagent.
Database Table:	reagent
Database Column:	weblink

Database Column Type:	varchar(250)

reagents.Sequencing.txt : Contact	
Description:	If the reagent is from a non-commercial source, the contact information should indicate with whom to communicate to get further details.
Required:	No
Lookup:	None
Comment:	The contact information is particularly helpful when the reagent is not from a commercial vendor.
Database Table:	reagent
Database Column:	contact
Database Column Type:	varchar(1000)

60. **reagents.Virus_Neutralization.txt**

The virus neutralization reagent template defines and annotates reagents used for virus neutralization including the cell types, and antibodies if an ELISA approach is employed.

reagents.Virus_Neutralization.txt : User Defined ID	
Description:	The reagent user defined ID is an identifier chosen by the data provider to refer to an assay reagent. The nature of the assay reagent is assay specific and may be an array, an antibody or a typing kit. This ID may be referenced by other data records (e.g. experiment sample). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	reagent
Database Column:	user_defined_id
Database Column Type:	varchar(100)

reagents.Virus_Neutralization.txt : Name	
Description:	The reagent name is not referenced by other data records.
Required:	No
Lookup:	None
Comment:	The reagent name is an alternate ID that is shared.
Database Table:	reagent
Database Column:	name
Database Column Type:	varchar(200)

reagents.Virus_Neutralization.txt : Description

Description:	The assay reagent description provides further details on the nature and purpose of the reagent.
Required:	No
Lookup:	None
Comment:	A supplemental description of the assay reagent that expands on its Name and User Defined ID.
Database Table:	reagent
Database Column:	description
Database Column Type:	varchar(4000)

reagents.Virus_Neutralization.txt : Manufacturer	
Description:	The source of a reagent may be important for evaluating assay results.
Required:	Yes
Lookup:	None
Comment:	The manufacturer is the source of a reagent and may include commercial vendors as well as non-commercial sources (e.g. collaborating labs).
Database Table:	reagent
Database Column:	manufacturer
Database Column Type:	varchar(100)

reagents.Virus_Neutralization.txt : Catalog Number	
Description:	The reagent's catalog ID provides a reference to the reagent source and description.
Required:	Yes
Lookup:	None

Comment:	If the assay reagent is a commercial product, enter the vendor's catalog identifier. If the reagent is a custom preparation enter 'NA'.
Database Table:	reagent
Database Column:	catalog_number
Database Column Type:	varchar(250)

reagents.Virus_Neutralization.txt : Lot Number	
Description:	The lot number is helpful to understand possible batch specific differences in assay results.
Required:	No
Lookup:	None
Comment:	The lot number is often provided by a reagent source when the reagent is replenished over time.
Database Table:	reagent
Database Column:	lot_number
Database Column Type:	varchar(250)

reagents.Virus_Neutralization.txt : Weblink	
Description:	The web link is often the vendor's web site.
Required:	No
Lookup:	None
Comment:	An internet address that may provide details of an assay reagent.
Database Table:	reagent
Database Column:	weblink

Database Column Type:	varchar(250)

reagents.Virus_Neutralization.txt : Contact	
Description:	If the reagent is from a non-commercial source, the contact information should indicate with whom to communicate to get further details.
Required:	No
Lookup:	None
Comment:	The contact information is particularly helpful when the reagent is not from a commercial vendor.
Database Table:	reagent
Database Column:	contact
Database Column Type:	varchar(1000)

61. **RNA_SEQ_Results.txt**

The RNA sequencing Transcripts results experiment sample template defines and annotates the assay results for a sample by linking sample, experiment, and results together.

RNA_SEQ_Results.txt : Expsample ID	
Description:	The experiment sample identifier must be stored in ImmPort or in the experimentsamples.txt template.
Required:	Yes
Lookup:	None
Comment:	Please enter either an experiment sample user defined ID or ImmPort accession.
Database Table:	rna_seq_result And expsample_2_file_info
Database Column:	expsample_accession
Database Column Type:	varchar(15)

RNA_SEQ_Results.txt : Reference Transcript ID	
Description:	The NCBI ID for the transcript/gene. Either the NCBI ID or the Ensembl ID must be provided.
Required:	Yes
Lookup:	None
Comment:	The ID for the transcript/gene. Either the NCBI ID or the Ensembl ID must be provided.
Database Table:	rna_seq_result
Database Column:	reference_transcript_id
Database Column Type:	varchar(100)

RNA_SEQ_Results.txt : Repository Name

Description:	The public repository name for the transcript (for example, Ensembl or NCBI Gene).
Required:	Yes
Controlled Lookup:	Please refer to Appendix A - lk_public_repository.
Comment:	The public repository name for the transcript (for example, Ensembl or NCBI Gene).
Database Table:	rna_seq_result
Database Column:	repository_name
Database Column Type:	varchar(50)

RNA_SEQ_Results.txt : Transcript Type Reported	
Description:	The type of transcript reported.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_transcript_type with preferred column(s) transcript_preferred.
Comment:	The type of transcript reported.
Database Table:	rna_seq_result
Database Column:	transcript_type_reported
Database Column Type:	varchar(100)

RNA_SEQ_Results.txt : Result Unit Reported	
Description:	The unit for the result_value.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_rna_sequence_result_unit_type with preferred column(s) result_unit_preferred.

Comment:	The unit for the result value.
Database Table:	rna_seq_result
Database Column:	result_unit_reported
Database Column Type:	varchar(100)

RNA_SEQ_Results.txt : Value Reported	
Description:	The transcripts or gene count for the transcript.
Required:	Yes
Lookup:	None
Comment:	The count or gene count for the transcript.
Database Table:	rna_seq_result
Database Column:	value_reported
Database Column Type:	varchar(50)

RNA_SEQ_Results.txt : Comments	
Description:	Comments captures additional descriptive information that is added to the result.
Required:	No
Lookup:	None
Comment:	Comments captures additional descriptive information that is added to the result.
Database Table:	rna_seq_result
Database Column:	comments

Database Column Type:	varchar(500)

62. **standardCurves.txt**

The standard curve template defines and annotates the standard curves derived from the control sample's concentration and MFI to interpret the experiment sample's MFI in terms of its analyte concentration. This template requires that the standard curve be always new, while the experiment can be new or pre-defined. The standard curve is the key the template and must be unique.

62.1. Standard Curve Meta Data Columns

The Standard Curve Meta Data Columns include the columns for the combined entity Standard Curve.

Standard Curve Meta Data Column standardCurves.txt : Standard Curve ID	
Description:	The Standard Curve user defined ID is an identifier chosen by the data provider to refer to a Standard Curve. This ID may be referenced by other data records (e.g. MBAA results). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	standard_curve
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Standard Curve Meta Data Column standardCurves.txt : Formula	
Description:	The formula used to calculate the standard curve from the input data.
Conditional Required:	Yes for **New Standard Curve**
Lookup:	None
Comment:	The formula used to calculate the standard curve from the input data.
Database Table:	standard_curve
Database Column:	formula

Database Column Type:	varchar(500)

Standard Curve Meta Data Column standardCurves.txt : Analyte Reported	
Description:	The molecule or entity being measured. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Conditional Required:	Yes for **New Standard Curve**
Preferred Lookup:	Please refer to Appendix A - lk_analyte with preferred column(s) immunology_symbol and short_label and analyte_preferred.
Comment:	The molecule or entity being measured. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Database Table:	standard_curve
Database Column:	analyte_reported
Database Column Type:	varchar(100)

Standard Curve Meta Data Column standardCurves.txt : Assay ID	
Description:	The assay ID represents the plate or array ID where standard curves, control samples, and experiment samples were collected and assayed. This ID will be used to link standard curves, control samples, and experiment samples results.
Conditional Required:	Yes for **New Standard Curve**
Lookup:	None
Comment:	The assay ID represents the plate or array ID where standard curves, control samples, and experiment samples were collected and assayed. This ID will be used to link standard curves, control samples, and experiment samples results.
Database Table:	standard_curve
Database Column:	assay_id

Database Column Type:	varchar(100)

Standard Curve Meta Data Column standardCurves.txt : Assay Group ID	
Description:	The assay group ID represents a collection of plates or arrays. This ID may be used to link collections of standard curves, control samples, and experiment samples results.
Required:	No
Lookup:	None
Comment:	The assay group ID represents a collection of plates or arrays. This ID may be used to link collections of standard curves, control samples, and experiment samples results.
Database Table:	standard_curve
Database Column:	assay_group_id
Database Column Type:	varchar(100)

Standard Curve Meta Data Column standardCurves.txt : Lower Limit	
Description:	A number is expected.
Conditional Required:	Yes for **New Standard Curve**
Lookup:	None
Comment:	Lower limit value established by the standard curve.
Database Table:	standard_curve
Database Column:	lower_limit
Database Column Type:	varchar(100)

Standard Curve Meta Data Column standardCurves.txt : Lower Limit Unit	
Description:	Lower limit unit established by the standard curve.
Conditional Required:	Yes for **New Standard Curve**
Lookup:	None
Comment:	Lower limit unit established by the standard curve.
Database Table:	standard_curve
Database Column:	lower_limit_unit
Database Column Type:	varchar(100)

Standard Curve Meta Data Column standardCurves.txt : Upper Limit	
Description:	A number is expected.
Conditional Required:	Yes for **New Standard Curve**
Lookup:	None
Comment:	Upper limit value established by the standard curve.
Database Table:	standard_curve
Database Column:	upper_limit
Database Column Type:	varchar(100)

Standard Curve Meta Data Column standardCurves.txt : Upper Limit Unit	
Description:	Upper limit value established by the standard curve.
Conditional Required:	Yes for **New Standard Curve**
Lookup:	None

Comment:	Upper limit value established by the standard curve.
Database Table:	standard_curve
Database Column:	upper_limit_unit
Database Column Type:	varchar(100)

Standard Curve Meta Data Column standardCurves.txt : ImmPort Template?	
Description:	The format of the result file depends on the assay type. ImmPort supports results templates (MBAA_Results.txt) for some of the commonly used immunological assay methods. These template facilitate the sharing and re-use of results data in a standard format. If the result file is the ImmPort results template (strongly recommended by NIAID DAIT), choose 'Yes' from the drop down list and do not include a file name in the "Result File Name" column. If the result file is not an ImmPort results template, choose 'No' from the drop down list and include a file name in the "Result File Name" column.
Conditional Required:	Yes for **New Standard Curve**
Controlled Lookup:	Please refer to Appendix A - lk_yes_no.
Comment:	The format of the result file depends on the assay type. ImmPort supports results templates (MBAA_Results.txt) for some of the commonly used immunological assay methods. These template facilitate the sharing and re-use of results data in a standard format. If the result file is the ImmPort results template (strongly recommended by NIAID DAIT), choose 'Yes' from the drop down list and do not include a file name in the "Result File Name" column. If the result file is not an ImmPort results template, choose 'No' from the drop down list and include a file name in the "Result File Name" column.

Standard Curve Meta Data Column standardCurves.txt : Result File Name	
Description:	Enter the full result file name including file extension. The file size name limit is 240 characters.
Required:	No
Lookup:	None
Comment:	Enter the full result file name including file extension. The file size name limit is 240 characters.

Standard Curve Meta Data Column standardCurves.txt : Additional Result File Names	
Description:	See the ImmPort Data Upload Guide for details on where MBAA bead level files are stored depending on the assay platform used. Separate file names by a semi-colon (;). The file size name limit is 240 characters.
Required:	No
Lookup:	None
Comment:	HIPC recommends including bead level result files if they are available. The file size name limit is 240 characters.

62.2. Experiment Meta Data Columns

The Experiment Meta Data Columns include the columns for the combined entity Experiment.

Experiment Meta Data Column standardCurves.txt : Experiment ID	
Description:	The experiment identifier must be stored in ImmPort or in the experiments.txt template.
Required:	Yes
Lookup:	None
Comment:	Please enter either a experiment user defined ID or ImmPort accession.
Database Table:	experiment
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Experiment Meta Data Column standardCurves.txt : Study ID	
Description:	An experiment may be linked to a single study.
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	Please enter either a study user defined ID or ImmPort accession.
Database Table:	experiment

Database Column:	study_accession
Database Column Type:	varchar(15)

Experiment Meta Data Column standardCurves.txt : Protocol ID(s)	
Description:	Please enter either a protocol user defined ID or ImmPort accession for a protocol that describes how the sample was derived and prepared. One or more identifiers can be entered per sample. Separate identifiers by semicolon (;).
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	Please enter either a protocol user defined ID or ImmPort accession.
Database Table:	experiment_2_protocol
Database Column:	protocol_accession
Database Column Type:	varchar(15)

Experiment Meta Data Column standardCurves.txt : Name	
Description:	The experiment name is not referenced by other data records.
Conditional Required:	Yes for **New Experiment**
Lookup:	None
Comment:	The experiment name is an alternate identifier that is visible when the sample is shared.
Database Table:	experiment
Database Column:	name
Database Column Type:	varchar(500)

Experiment Meta Data Column standardCurves.txt : Description	
Description:	The experiment description is used to describe details of the experiment not captured in other columns.
Required:	No
Lookup:	None
Comment:	The experiment description is used to describe details of the experiment not captured in other columns.
Database Table:	experiment
Database Column:	description
Database Column Type:	varchar(4000)

Experiment Meta Data Column standardCurves.txt : Measurement Technique	
Description:	The measurement technique describes the assay method.
Conditional Required:	Yes for **New Experiment**
Controlled Lookup:	Please refer to Appendix A - lk_exp_measurement_tech.
Comment:	Choose from a drop down list.
Database Table:	experiment
Database Column:	measurement_technique
Database Column Type:	varchar(50)

63. **study_design_edit.txt**

The optional study design edit template defines and annotates elements of a study that are optional when it is initially defined (e.g. weblinks, publications) and for which updates are available after the initial design is uploaded. Use the study_design_edit template to add additional information for a study after a study is defined in ImmPort. IF ANY OF THE FOLLOWING SECTIONS ARE NOT USED, THEY NEED TO BE DELETED FROM THE TEMPLATE PRIOR TO UPLOADING THE TEMPLATE: arm_2_subject, arm_or_cohort, inclusion_exclusion, planned_visit, study_2_condition_or_disease, study_2_protocol, study_categorization, study_data_release, study_file, study_image, study_link, study_personnel, or study_pubmed.

63.1. Study_categorization

The compound template Study_categorization is optional.

Study_categorization : Study ID	
Description:	The study ID can be either the study user defined ID or a study accession.
Required:	Yes
Lookup:	None
Comment:	The study ID can be either the study user defined ID or a study accession.
Database Table:	study_categorization
Database Column:	study_accession
Database Column Type:	varchar(15)

Study_categorization : Research Focus	
Description:	A research focus for the study from the drop down list
Required:	Yes
Controlled Lookup:	Please refer to Appendix A - lk_research_focus.
Comment:	Please use the drop down list
Database Table:	study_categorization
Database Column:	research_focus

Database Column Type:	varchar(50)

63.2. Study_2_condition_or_disease

The compound template Study_2_condition_or_disease is optional.

Study_2_condition_or_disease : Study ID	
Description:	The study ID can be either the study user defined ID or a study accession.
Required:	Yes
Lookup:	None
Comment:	The study ID can be either the study user defined ID or a study accession.
Database Table:	study_2_condition_or_disease
Database Column:	study_accession
Database Column Type:	varchar(15)

Study_2_condition_or_disease : Condition Reported	
Description:	The condition(s)/disease(s) that is (are) being researched or evaluated in the study. Please select condition or disease from the list provided if the condition or disease matches yours or enter a condition or disease if there is not an appropriate one provided. Values provided by the user are further checked against the pref mapping table lk_study_condition_pref_mappng.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_disease_condition with preferred column(s) condition_preferred. Also, please refer to Appendix A - lk_study_condition_pref_mappng for Pref Mapping with preferred column(s) condition_preferred.
Comment:	The condition(s)/disease(s) that is (are) being researched or evaluated in the study. Please select condition or disease from the list provided if the condition or disease matches yours or enter a condition or disease if there is not an appropriate one provided. Values provided by the user are further checked against the pref mapping table lk_study_condition_pref_mappng.
Database Table:	study_2_condition_or_disease

Database Column:	condition_reported
Database Column Type:	varchar(550)

63.3. Study_data_release

The compound template Study_data_release is optional.

Study_data_release : Study ID	
Description:	The study ID can be either the study user defined ID or a study accession.
Required:	Yes
Lookup:	None
Comment:	The study ID can be either the study user defined ID or a study accession.
Database Table:	study_data_release
Database Column:	study_accession
Database Column Type:	varchar(15)

Study_data_release : Data Release Version	
Description:	The version of the study data release. It is a positive integer.
Required:	Yes
Lookup:	None
Comment:	The version of the study data release. It is a positive integer.
Database Table:	study_data_release
Database Column:	data_release_version
Database Column Type:	integer

Study_data_release : Data Release Date	
Description:	The date format is either dd-MMM-yy or dd-MMM-yyyy where day (dd) is one or two digits 1..31 appropriate to the month, month (MMM) is case-insensitive value (Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec), and year is either (yy) two digits, for example 05 means 2005, and 96 means 1996, or (yyyy) is four digit year, for example 2005.
Required:	Yes
Lookup:	None
Comment:	The release date for the given version (Data Release Version) study. The date format is either dd-MMM-yy or dd-MMM-yyyy.
Database Table:	study_data_release
Database Column:	data_release_date
Database Column Type:	date

Study_data_release : Data Release Status	
Description:	The status of the data release for the study. Either it is the 'Initial' release or an 'Updated' release.
Required:	Yes
Controlled Lookup:	Please refer to Appendix A - lk_release_status.
Comment:	The status of the data release for the study. Either it is the 'Initial' release or an 'Updated' release.
Database Table:	study_data_release
Database Column:	status
Database Column Type:	varchar(50)

63.4. Study_file

The compound template Study_file is optional.

Study_file : Study ID	
Description:	The study ID can be either the study user defined ID or a study accession.
Required:	Yes
Lookup:	None
Comment:	The study ID can be either the study user defined ID or a study accession.
Database Table:	study_file
Database Column:	study_accession
Database Column Type:	varchar(15)

Study_file : File Name	
Description:	If there are additional files (e.g. as data dictionaries, CRFs, custom formatted lab tests or assements) that should be linked to the study please indicate them in this block. Insert rows in the template to link additional files to the study. The file size name limit is 250 characters. For a given study, all file names for study_file must be unique.
Required:	Yes
Lookup:	None
Comment:	The name of the file, including file extension, that is to be linked to the study. The file size name limit is 250 characters. For a given study, all file names for study_file must be unique.
Database Table:	study_file
Database Column:	file_name
Database Column Type:	varchar(250)

Study_file : Description	
Description:	A brief description of the file.
Required:	Yes

Lookup:	None
Comment:	A brief description of the file.
Database Table:	study_file
Database Column:	description
Database Column Type:	varchar(4000)

Study_file : Study File Type	
Description:	Additional study data or study description are current preferred terms.
Required:	Yes
Controlled Lookup:	Please refer to Appendix A - lk_study_file_type.
Comment:	Please choose from the drop down list.
Database Table:	study_file
Database Column:	study_file_type
Database Column Type:	varchar(50)

63.5. Study_image

The compound template Study_image is optional.

Study_image : Study ID	
Description:	The study ID can be either the study user defined ID or a study accession.
Required:	Yes
Lookup:	None
Comment:	The study ID can be either the study user defined ID or a study accession.
Database Table:	study_image

Database Column:	study_accession
Database Column Type:	varchar(15)

Study_image : Image Filename	
Description:	The name of the file containing the study image for the study. The file size name limit is 250 characters. For a given study, all file names for study_file must be unique.
Required:	Yes
Lookup:	None
Comment:	The name of the file containing the study image for the study.
Database Table:	study_image
Database Column:	image_filename
Database Column Type:	varchar(250)

Study_image : Name	
Description:	The name or title for the study schematic.
Required:	Yes
Lookup:	None
Comment:	The name or title for the study schematic.
Database Table:	study_image
Database Column:	name
Database Column Type:	varchar(40)

Study_image : Description	
Description:	A brief description of the study image file.
Required:	No
Lookup:	None
Comment:	A brief description of the study image file.
Database Table:	study_image
Database Column:	description
Database Column Type:	varchar(4000)

63.6. Study_link

The compound template Study_link is optional.

Study_link : Study ID	
Description:	The study ID can be either the study user defined ID or a study accession.
Required:	Yes
Lookup:	None
Comment:	The study ID can be either the study user defined ID or a study accession.
Database Table:	study_link
Database Column:	study_accession
Database Column Type:	varchar(15)

Study_link : Name	
Description:	The name of the website to which the link refers.
Required:	Yes
Lookup:	None

Comment:	The name of the website to which the link refers.
Database Table:	study_link
Database Column:	name
Database Column Type:	varchar(500)

Study_link : Value	
Description:	If this is a clinical trial, please include the clinicalTrial.gov URL.
Required:	Yes
Lookup:	None
Comment:	Define websites that are linked to the study. Insert rows in the template to define additional websites linked to the study.
Database Table:	study_link
Database Column:	value
Database Column Type:	varchar(2000)

63.7. Study_pubmed

The compound template Study_pubmed is optional.

Study_pubmed : Study ID	
Description:	The study ID can be either the study user defined ID or a study accession.
Required:	Yes
Lookup:	None
Comment:	The study ID can be either the study user defined ID or a study accession.
Database Table:	study_pubmed

Database Column:	study_accession
Database Column Type:	varchar(15)

Study_pubmed : Pubmed ID	
Description:	The Pubmed or PubMedCentral identifier of an article that includes data from this study.
Required:	Yes
Lookup:	None
Comment:	The Pubmed or PubMedCentral identifier of an article that includes data from this study.
Database Table:	study_pubmed
Database Column:	pubmed_id
Database Column Type:	varchar(16)

Study_pubmed : DOI	
Description:	Digital Object Identifier is a persistent identifier or handle used to uniquely identify an object. ImmPort DOIs are generated by DataCite (https://www.datacite.org/)
Required:	No
Lookup:	None
Comment:	Digital Object Identifier is a persistent identifier or handle used to uniquely identify an object.
Database Table:	study_pubmed
Database Column:	doi
Database Column Type:	varchar(100)

Study_pubmed : Title	
Description:	The title of an article that includes data from this study.
Required:	No
Lookup:	None
Comment:	The title of an article that includes data from this study.
Database Table:	study_pubmed
Database Column:	title
Database Column Type:	varchar(4000)

Study_pubmed : Journal	
Description:	The journal name that publishes an article that includes data from this study.
Required:	No
Lookup:	None
Comment:	The journal name that publishes an article that includes data from this study.
Database Table:	study_pubmed
Database Column:	journal
Database Column Type:	varchar(250)

Study_pubmed : Year	
Description:	This is the description of the field Year. Please refer to the user guide for more description. This description can also be found in the user document
Required:	No
Lookup:	None

Comment:	
Database Table:	study_pubmed
Database Column:	year
Database Column Type:	varchar(4)

Study_pubmed : Month	
Description:	This is the description of the field Month. Please refer to the user guide for more description. This description can also be found in the user document
Required:	No
Lookup:	None
Comment:	
Database Table:	study_pubmed
Database Column:	month
Database Column Type:	varchar(12)

Study_pubmed : Issue	
Description:	This is the description of the field Issue. Please refer to the user guide for more description. This description can also be found in the user document
Required:	No
Lookup:	None
Comment:	
Database Table:	study_pubmed
Database Column:	issue

Database Column Type:	varchar(20)

Study_pubmed : Pages	
Description:	This is the description of the field Pages. Please refer to the user guide for more description. This description can also be found in the user document
Required:	No
Lookup:	None
Comment:	
Database Table:	study_pubmed
Database Column:	pages
Database Column Type:	varchar(20)

Study_pubmed : Authors	
Description:	This is the description of the field Authors. Please refer to the user guide for more description. This description can also be found in the user document
Required:	No
Lookup:	None
Comment:	
Database Table:	study_pubmed
Database Column:	authors
Database Column Type:	varchar(4000)

63.8. Arm_or_cohort

The compound template Arm_or_cohort is optional.

Arm_or_cohort : Study ID	
Description:	The study ID can be either the study user defined ID or a study accession.
Required:	Yes
Lookup:	None
Comment:	The study ID can be either the study user defined ID or a study accession.
Database Table:	arm_or_cohort
Database Column:	study_accession
Database Column Type:	varchar(15)

Arm_or_cohort : User Defined ID	
Description:	The study's arm(s) or cohort(s) group subjects by criteria relevant to the study (e.g. age, condition) and/or treatments or interventions. Insert rows in the template to define additional arms or cohorts linked to the study.
Required:	Yes
Lookup:	None
Comment:	The arm or cohort user defined ID is an identifier chosen by the data provider to refer to a subject grouping in the study document. This ID may be referenced by other data records (e.g. subjects). The user defined ID is not shared.
Database Table:	arm_or_cohort
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Arm_or_cohort : Name	
Description:	The arm or cohort name is not referenced by other data records.
Required:	Yes
Lookup:	None

Comment:	The arm or cohort name is an alternate identifier that is visible when the study is shared.
Database Table:	arm_or_cohort
Database Column:	name
Database Column Type:	varchar(126)

Arm_or_cohort : Description	
Description:	The description should expand any abbreviations used in the arm or cohort name. For example for an observational study with a cohort whose name was "ADEH+", the description would be "Atopic dermatitis with eczema herpeticum".
Required:	Yes
Lookup:	None
Comment:	The description should expand any abbreviations used in the arm or cohort name.
Database Table:	arm_or_cohort
Database Column:	description
Database Column Type:	varchar(4000)

Arm_or_cohort : Type Reported	
Description:	The drop down list provides the list of preferred study arm types derived from the National Cancer Institute Thesaurus (NCIT). For an interventional study, the type defines the treatment/control attributes of the arms. The attributes are selected from the values listed below (a study may have more than one arm of a given value). Clinical studies often use the following terms. Experimental - Arm for procedure or drug being evaluated. Active Comparator - arm receiving "standard of care" treatment. Placebo Comparator - arm receiving placebo treatment. Sham Comparator - arm receiving a sham procedure such as a urgery or a sham device. No Intervention - arm receiving neither "standard of care" treatment a placebo, or sham procedure or device. For an observational study, the type should be Observational - All arms are observing differences in cohorts
Required:	Yes

Preferred Lookup:	Please refer to Appendix A - lk_arm_type with preferred column(s) type_preferred. Also, please refer to Appendix A - lk_arm_type_pref_mapping for Pref Mapping with preferred column(s) type_preferred.
Comment:	Please select a preferred arm study type from the the drop down list. Terms are derived from the National Cancer Institute Thesaurus (NCIT). The study arm type is a preferred value and the table lk_arm_type_pref_mapping is also used to map the reported type to the drop down list (lk_arm_type).
Database Table:	arm_or_cohort
Database Column:	type_reported
Database Column Type:	varchar(40)

63.9. Arm_2_subject

The compound template Arm_2_subject is optional.

Arm_2_subject : Subject ID	
Description:	The subject ID can be either subject user defined ID or a subject accession.
Required:	Yes
Lookup:	None
Comment:	The subject ID can be either subject user defined ID or a subject accession.
Database Table:	arm_2_subject
Database Column:	subject_accession
Database Column Type:	varchar(15)

Arm_2_subject : Arm Or Cohort ID	
Description:	A subject may be assigned to a single arm within a study. To link a subject to more than one study's arm, create a new record for each subject to arm link.
Required:	Yes
Lookup:	None

Comment:	The arm or cohort ID can be either arm or cohort user defined ID or an arm or cohort accession.
Database Table:	arm_2_subject
Database Column:	arm_accession
Database Column Type:	varchar(15)

Arm_2_subject : Min Subject Age	
Description:	The subject age at the outset of the study may be determined form one of several study milestones as indicated in the Age Event column.
Required:	Yes
Lookup:	None
Comment:	Please enter a number.
Database Table:	arm_2_subject
Database Column:	min_subject_age
Database Column Type:	float

Arm_2_subject : Max Subject Age	
Description:	The subject age at the end of the study may be determined form one of several study milestones.
Required:	No
Lookup:	None
Comment:	Please enter a number.
Database Table:	arm_2_subject
Database Column:	max_subject_age

Database Column Type:	float

Arm_2_subject : Age Unit	
Description:	A list of preferred terms is available.. The age unit must conform to the age unit assigned to the study.
Required:	Yes
Controlled Lookup:	Please refer to Appendix A - lk_time_unit.
Comment:	Please choose from the drop down list. The age unit must conform to the age unit assigned to the study.
Database Table:	arm_2_subject
Database Column:	age_unit
Database Column Type:	varchar(25)

Arm_2_subject : Age Event	
Description:	A list of preferred terms is available.
Required:	Yes
Controlled Lookup:	Please refer to Appendix A - lk_age_event.
Comment:	Please choose from the drop down list.
Database Table:	arm_2_subject
Database Column:	age_event
Database Column Type:	varchar(40)

Arm_2_subject : Age Event Specify

Description:	This column supports providing study milestones for subject's age determination that ImmPort does not support.
Required:	No
Lookup:	None
Comment:	If "Age Event" = Other, this field specifies the age event (free text). Otherwise, leave this column blank.
Database Table:	arm_2_subject
Database Column:	age_event_specify
Database Column Type:	varchar(50)

Arm_2_subject : Subject Phenotype	
Description:	The subject phenotype captures key aspects of the subject's disposition for the study.
Required:	No
Lookup:	None
Comment:	Enter a description of the subject.
Database Table:	arm_2_subject
Database Column:	subject_phenotype
Database Column Type:	varchar(200)

Arm_2_subject : Subject Location	
Description:	A list of subject locations is available.
Required:	No
Controlled Lookup:	Please refer to Appendix A - lk_subject_location.
Comment:	Please choose from the drop down list.

Database Table:	arm_2_subject
Database Column:	subject_location
Database Column Type:	varchar(50)

63.10. Planned_visit

The compound template Planned_visit is optional.

Planned_visit : Study ID	
Description:	The study ID can be either the study user defined ID or a study accession.
Required:	No
Lookup:	None
Comment:	The study ID can be either the study user defined ID or a study accession.
Database Table:	planned_visit
Database Column:	study_accession
Database Column Type:	varchar(15)

Planned_visit : User Defined ID	
Description:	The planned visit user defined ID is an identifier chosen by the data provider to refer to a protocol document. This ID may be referenced by other data records (e.g. biological samples). The user defined ID is not shared. Insert rows in the template to define additional planned visits linked to the study.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	planned_visit

Database Column:	user_defined_id
Database Column Type:	varchar(100)

Planned_visit : Name	
Description:	the visit name should indicate the purpose of the visit (e.g. screening, assessment, inoculation, sample drawn). The visit name is not referenced by other data records.
Required:	Yes
Lookup:	None
Comment:	The visit name is an alternate identifier that is visible when the protocol is shared.
Database Table:	planned_visit
Database Column:	name
Database Column Type:	varchar(256)

Planned_visit : Order Number	
Description:	This is a positive whole number value.
Required:	Yes
Lookup:	None
Comment:	The order of the visit within the study design schedule.
Database Table:	planned_visit
Database Column:	order_number
Database Column Type:	integer

Planned_visit : Min Start Day	
Description:	This is a positive or negative numeric value.
Required:	Yes
Lookup:	None
Comment:	The minimum start day for a visit as defined in the study schedule.
Database Table:	planned_visit
Database Column:	min_start_day
Database Column Type:	float

Planned_visit : Max Start Day	
Description:	This is a positive or negative numeric value. If no value is entered, the maximum start day will be set equal to the minimum start day.
Required:	No
Lookup:	None
Comment:	The maximum start day for a visit as defined in the study schedule.
Database Table:	planned_visit
Database Column:	max_start_day
Database Column Type:	float

Planned_visit : Start Rule	
Description:	Enter a start rule only if it is more interesting than "subject has arrived for a scheduled visit".
Required:	No
Lookup:	None

Comment:	Enter a start rule only if it is more interesting than "subject has arrived for a scheduled visit".
Database Table:	planned_visit
Database Column:	start_rule
Database Column Type:	varchar(256)

Planned_visit : End Rule	
Description:	Enter an end rule only if it is more interesting than "subject has arrived for a scheduled visit".
Required:	No
Lookup:	None
Comment:	Enter an end rule only if it is more interesting than "subject has arrived for a scheduled visit".
Database Table:	planned_visit
Database Column:	end_rule
Database Column Type:	varchar(256)

63.11. Study_personnel

The compound template Study_personnel is optional.

Study_personnel : Study ID	
Description:	The study ID can be either the study user defined ID or a study accession.
Required:	Yes
Lookup:	None
Comment:	The study ID can be either the study user defined ID or a study accession.
Database Table:	study_personnel

Database Column:	study_accession
Database Column Type:	varchar(15)

Study_personnel : User Defined ID	
Description:	The personnel user defined ID is an identifier chosen by the data provider to refer to personnel who may be contacted for more details about the study document. If more than one study personnel record is to be defined, copy the block of rows from Study_Personnel_ID to Site_Name for each additional study personnel record.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	study_personnel
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Study_personnel : Honorific	
Description:	Usually, the education achievement level of the person.
Required:	No
Lookup:	None
Comment:	Usually, the education achievement level of the person.
Database Table:	study_personnel
Database Column:	honorific
Database Column Type:	varchar(20)

Study_personnel : Last Name	
Description:	The last name of the study personnel being described.
Required:	Yes
Lookup:	None
Comment:	The last name of the study personnel being described.
Database Table:	study_personnel
Database Column:	last_name
Database Column Type:	varchar(40)

Study_personnel : First Name	
Description:	The first name of the study personnel being described.
Required:	Yes
Lookup:	None
Comment:	The first name of the study personnel being described.
Database Table:	study_personnel
Database Column:	first_name
Database Column Type:	varchar(40)

Study_personnel : Suffixes	
Description:	Suffixes that are part of the study personnel's name being described.
Required:	No
Lookup:	None

Comment:	Suffixes that are part of the study personnel's name being described.
Database Table:	study_personnel
Database Column:	suffixes
Database Column Type:	varchar(40)

Study_personnel : Organization	
Description:	The organization with whom the study personnel being described is affiliated.
Required:	Yes
Lookup:	None
Comment:	The organization with whom the study personnel being described is affiliated.
Database Table:	study_personnel
Database Column:	organization
Database Column Type:	varchar(125)

Study_personnel : ORCID ID	
Description:	ORCID (Open Researcher and Contributor Identification), a non-profit organization that promotes the use of its unique digital identifier to connect researchers with their science contributions over time and across changes of name, location and institutional affiliation. The NIH encourages use of this ID. See the link https://nexus.od.nih.gov/all/2019/08/05/linking-orcid-identifiers-to-era-profiles-to-streamline-application-processes-and-to-enhance-tracking-of-career-outcomes/.
Required:	No
Lookup:	None
Comment:	ORCID (Open Researcher and Contributor Identification), a non-profit organization that promotes the use of its unique digital identifier to connect researchers with their science contributions over time and across changes of name, location and institutional affiliation. The NIH encourages use of this ID.

Database Table:	study_personnel
Database Column:	orcid
Database Column Type:	varchar(1000)

Study_personnel : Email	
Description:	Contact information of the study personnel being described.
Required:	Yes
Lookup:	None
Comment:	Contact information of the study personnel being described.
Database Table:	study_personnel
Database Column:	email
Database Column Type:	varchar(100)

Study_personnel : Title In Study	
Description:	The role the personnel play in the study as defined by the research team.
Required:	Yes
Lookup:	None
Comment:	The role the personnel play in the study as defined by the research team.
Database Table:	study_personnel
Database Column:	title_in_study
Database Column Type:	varchar(100)

Study_personnel : Role In Study	
Description:	The ImmPort display will show the personnel listed as 'PI' in the study.
Required:	Yes
Controlled Lookup:	Please refer to Appendix A - lk_personnel_role.
Comment:	Please use the drop down list.
Database Table:	study_personnel
Database Column:	role_in_study
Database Column Type:	varchar(40)

Study_personnel : Site Name	
Description:	Enter the site name if there is a need to further differentiate the affiliation of the study personnel form the Organization.
Required:	Yes
Lookup:	None
Comment:	Enter the site name if there is a need to further differentiate the affiliation of the study personnel form the Organization.
Database Table:	study_personnel
Database Column:	site_name
Database Column Type:	varchar(100)

63.12. Inclusion_exclusion

The compound template Inclusion_exclusion is optional.

Inclusion_exclusion : Study ID	
Description:	The study ID can be either the study user defined ID or a study accession.

Required:	Yes
Lookup:	None
Comment:	The study ID can be either the study user defined ID or a study accession.
Database Table:	inclusion_exclusion
Database Column:	study_accession
Database Column Type:	varchar(15)

Inclusion_exclusion : User Defined ID	
Description:	The inclusion or exclusion user defined ID is an identifier chosen by the data provider to refer to a criterion used to determine whether a subject may be enrolled in a study.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	inclusion_exclusion
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Inclusion_exclusion : Criterion	
Description:	One or more criterion must be described to decide whether a subject may be enrolled in a study.
Required:	Yes
Lookup:	None
Comment:	The criterion describes the parameter used to decide if a subject may be enrolled in a study.

Database Table:	inclusion_exclusion
Database Column:	criterion
Database Column Type:	varchar(750)

Inclusion_exclusion : Criterion Category	
Description:	The criterion category is selected from a preferred list of terms.
Required:	Yes
Controlled Lookup:	Please refer to Appendix A - lk_criterion_category.
Comment:	There are two values to choose from: inclusion or exclusion.
Database Table:	inclusion_exclusion
Database Column:	criterion_category
Database Column Type:	varchar(40)

63.13. Study_2_protocol

The compound template Study_2_protocol is optional.

Study_2_protocol : Study ID	
Description:	The study ID can be either the study user defined ID or a study accession.
Required:	Yes
Lookup:	None
Comment:	The study ID can be either the study user defined ID or a study accession.
Database Table:	study_2_protocol
Database Column:	study_accession

Database Column Type:	varchar(15)

Study_2_protocol : Protocol ID	
Description:	The protocol ID for the study.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded. It can be either a protocol user defined ID or an Accession.
Database Table:	study_2_protocol
Database Column:	protocol_accession
Database Column Type:	varchar(15)

64. **subjectAnimals.txt**

The subject animal template defines and annotates key elements of study subjects including demographics and links subjects to an arm within a study. In mouse studies, data providers may choose to define a single subject to represent a set of inbred mice treated the same way rather than describe each mouse (i.e. a cage of mice treated the same way). This approach is driven by how the assay results are recorded: if assay results are available for individual animals, then each animal should be defined to ImmPort.

64.1. Subject Meta Data Columns

The Subject Meta Data Columns include the columns for the combined entity Subject.

Subject Meta Data Column subjectAnimals.txt : Subject ID	
Description:	The subject defined ID is an identifier chosen by the data provider to refer to a subject. This ID may be referenced by other data records (e.g. biological sample). The user defined ID is not shared. For human subjects, the ID should not be identifying.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	subject
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Subject Meta Data Column subjectAnimals.txt : Sex	
Description:	A list of preferred terms is available.
Conditional Required:	Yes for **New Subject**
Controlled Lookup:	Please refer to Appendix A - lk_animal_sex.
Comment:	Please choose from the drop down list.
Database Table:	subject

Database Column:	gender
Database Column Type:	varchar(20)

Subject Meta Data Column subjectAnimals.txt : Min Subject Age	
Description:	The subject age at the outset of the study may be determined form one of several study milestones as indicated in the Age Event column.
Conditional Required:	Yes for **New Subject**
Lookup:	None
Comment:	Please enter a number.
Database Table:	arm_2_subject
Database Column:	min_subject_age
Database Column Type:	float

Subject Meta Data Column subjectAnimals.txt : Max Subject Age	
Description:	The subject age at the end of the study may be determined form one of several study milestones.
Required:	No
Lookup:	None
Comment:	Please enter a number.
Database Table:	arm_2_subject
Database Column:	max_subject_age
Database Column Type:	float

Subject Meta Data Column subjectAnimals.txt : Age Unit	
Description:	A list of preferred terms is available. The age unit must conform to the age unit assigned to the study.
Conditional Required:	Yes for **New Subject**
Controlled Lookup:	Please refer to Appendix A - lk_time_unit.
Comment:	Please choose from the drop down list. The age unit must conform to the age unit assigned to the study.
Database Table:	arm_2_subject
Database Column:	age_unit
Database Column Type:	varchar(25)

Subject Meta Data Column subjectAnimals.txt : Age Event	
Description:	A list of preferred terms is available.
Conditional Required:	Yes for **New Subject**
Controlled Lookup:	Please refer to Appendix A - lk_age_event.
Comment:	Please choose from the drop down list.
Database Table:	arm_2_subject
Database Column:	age_event
Database Column Type:	varchar(40)

Subject Meta Data Column subjectAnimals.txt : Age Event Specify	
Description:	This column supports providing study milestones for subject's age determination that ImmPort does not support.
Required:	No

Lookup:	None
Comment:	If "Age Event" = Other, this field specifies the age event (free text). Otherwise, leave this column blank.
Database Table:	arm_2_subject
Database Column:	age_event_specify
Database Column Type:	varchar(50)

Subject Meta Data Column subjectAnimals.txt : Subject Phenotype	
Description:	The subject phenotype captures key aspects of the subject's disposition for the study.
Required:	No
Lookup:	None
Comment:	Enter a description of the subject.
Database Table:	arm_2_subject
Database Column:	subject_phenotype
Database Column Type:	varchar(200)

Subject Meta Data Column subjectAnimals.txt : Subject Location	
Description:	A list of subject locations is available.
Conditional Required:	Yes for **New Subject**
Controlled Lookup:	Please refer to Appendix A - lk_subject_location.
Comment:	Please choose from the drop down list.
Database Table:	arm_2_subject

Database Column:	subject_location
Database Column Type:	varchar(50)

Subject Meta Data Column subjectAnimals.txt : Species	
Description:	A list of preferred terms is available. Macaca fascicularis is also commonly called cynomologus monkey, crab eating macaque, long-tailed macaque. Macaca mulatta is also commonly called rhesus macaque
Conditional Required:	Yes for **New Subject**
Controlled Lookup:	Please refer to Appendix A - lk_species.
Comment:	Please choose from the drop down list.
Database Table:	subject
Database Column:	species
Database Column Type:	varchar(30)

Subject Meta Data Column subjectAnimals.txt : Strain	
Description:	Please provide strain and breed information as available.
Conditional Required:	Yes for **New Subject**
Lookup:	None
Comment:	Please provide strain and breed information as available.
Database Table:	subject
Database Column:	strain
Database Column Type:	varchar(50)

Subject Meta Data Column subjectAnimals.txt : Strain Characteristics	
Description:	Strain or breed characteristics that are relevant for the study (e.g. susceptibility).
Required:	No
Lookup:	None
Comment:	Strain or breed characteristics that are relevant for the study (e.g. susceptibility).
Database Table:	subject
Database Column:	strain_characteristics
Database Column Type:	varchar(500)

64.2. Arm Or Cohort Meta Data Column

The Arm Or Cohort Meta Data Columns include the columns for the combined entity Arm Or Cohort.

Arm Or Cohort Meta Data Column subjectAnimals.txt : Arm Or Cohort ID	
Description:	A subject may be assigned to a single arm within a study. When subjects are initially uploaded to ImmPort, they may be assigned to a single study's arm.
Required:	Yes
Lookup:	None
Comment:	Please enter either a study arm or cohort user defined ID or ImmPort accession. When subjects are initially uploaded to ImmPort, they may be assigned to a single study's arm.
Database Table:	arm_or_cohort
Database Column:	user_defined_id
Database Column Type:	varchar(100)

64.3. Separator Column

This column must always appear in the template and must immediately follow after the last meta data column and before the (repeating) result column groups.

Separator Column subjectAnimals.txt : Result Separator Column	
Description:	This pseudo column separates meta data from results.
Required:	No
Lookup:	None
Comment:	This pseudo column separates the results (lab tests) from the lab test panel meta data. It must always appear and be the column that appears immediately after the last meta-data column and before any result columns.

64.4. Result Columns

Each result group (that is, result) consists of a group of the following result columns, where the **first column** of the group must always be '**Exposure Process Reported**'.

Table: Exposure Process Reported Conditional Logic

The following Matrix defines what reported template columns are required (XXXXX) for a given 'Exposure Process Reported' template column value. N.B. If multiple immune exposure values are needed for subject (e.g. more than one vaccine is administered), then multiple rows must be added to the template with the same 'Exposure Process Reported' column value. The 'Exposure Material ID' (YYYYY) is also required when the 'Exposure Material Reported' is required. However, if the 'Exposure Process Reported' is preferred value (contained in lk_exposure_material or lk_exposue_material_pref_map), the the column 'Exposure Material ID' can be left blank and it will be filled in by uploader.

Exposure Process Reported	Exposure Material Reported	Exposure Material ID	Disease Reported	Disease Ontology ID	Disease Stage Reported
administering substance in vivo	XXXXX	XXXXX			
documented exposure without evidence for disease	XXXXX	XXXXX			

environmental exposure to endemic/ubiquitous agent without evidence for disease	XXXXX	XXXXX			
exposure to substance without evidence for disease	XXXXX	XXXXX			
exposure with existing immune reactivity without evidence for disease	XXXXX	XXXXX			
infectious challenge	XXXXX	XXXXX			
occurrence of allergy	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX
occurrence of asymptomatic infection	XXXXX	XXXXX			
occurrence of autoimmune disease			XXXXX	XXXXX	XXXXX
occurrence of cancer			XXXXX	XXXXX	XXXXX
occurrence of disease			XXXXX	XXXXX	XXXXX
occurrence of infectious disease	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX
transplantation or transfusion	XXXXX	XXXXX			
vaccination	XXXXX	XXXXX			

Result Column subjectAnimals.txt : Exposure Process Reported

Description:	This identifies the type of process through which a host is exposed and the type of evidence for that exposure to have happened, which are tightly intertwined. This is the only element of the four that is always mandatory. Please select an exposure process from the list provided if the process matches yours or enter a exposure process if there is not an appropriate one provided. This exposure process is visible when the result is shared. The value provided by the user is further checked against the pref mapping table lk_exposure_process_pref_map.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_exposure_process with preferred column(s) exposure_process_preferred. Also, please refer to Appendix A - lk_exposure_process_pref_map for Pref Mapping with preferred column(s) exposure_process_preferred.
Comment:	This identifies the type of process through which a host is exposed and the type of evidence for that exposure to have happened, which are tightly intertwined. This is the only element of the four that is always mandatory. Please select an exposure process from the list provided if the process matches yours or enter a exposure process if there is not an appropriate one provided. This exposure process is visible when the result is shared. The value provided by the user is further checked against the pref mapping table lk_exposure_process_pref_map.
Database Table:	immune_exposure
Database Column:	exposure_process_reported
Database Column Type:	varchar(100)

Result Column subjectAnimals.txt : Exposure Material Reported	
Description:	This describes what substance(s) the host is exposed to and/or develops immune reactions to as part of the exposure process. Please select an exposure material from the list provided if the exposure material matches yours or enter a exposure material if there is not an appropriate one provided. This exposure material is visible when the result is shared. The value provided by the user is further checked against the pref mapping table lk_exposure_material_pref_map.
Required:	No
Preferred Lookup:	Please refer to Appendix A - lk_exposure_material with preferred column(s) exposure_material_preferred and exposure_material_id. Also, please refer to Appendix A - lk_exposure_material_pref_map for Pref Mapping with preferred column(s) exposure_material_preferred.

Comment:	This describes what substance(s) the host is exposed to and/or develops immune reactions to as part of the exposure process. Please select an exposure material from the list provided if the exposure material matches yours or enter a exposure material if there is not an appropriate one provided. This exposure material is visible when the result is shared. The value provided by the user is further checked against the pref mapping table lk_exposure_material_pref_map.
Database Table:	immune_exposure
Database Column:	exposure_material_reported
Database Column Type:	varchar(200)

Result Column subjectAnimals.txt : Exposure Material ID	
Description:	The NCBI or Vaccine Ontology ID associated with the exposure material. If the Exposure Material Reported is not a preferred value, then the Exposure Material ID must be provided. If the Exposure Material Reported is a preferred value, then the Exposure Material ID will be automatically be the ID associated with the preferred value and user will NOT need to supply this ID.
Required:	No
Lookup:	None
Comment:	The NCBI or Vaccine Ontology ID associated with the exposure material. If the Exposure Material Reported is not a preferred value, then the Exposure Material ID must be provided. If the Exposure Material Reported is a preferred value, then the Exposure Material ID will be automatically be the ID associated with the preferred value and user will NOT need to supply this ID.
Database Table:	immune_exposure
Database Column:	exposure_material_id
Database Column Type:	varchar(100)

Result Column subjectAnimals.txt : Disease Reported	
Description:	This indicates the specific disease of the host associated with the exposure. Please select a disease from the list provided if the disease matches yours or enter a disease if there is not an appropriate one provided. This disease is visible when the result is shared. The Value provide by the user is further checked against the pref mapping table lk_study_condition_pref_mappng.

Required:	No
Preferred Lookup:	Please refer to Appendix A - lk_disease with preferred column(s) disease_preferred and disease_ontology_id. Also, please refer to Appendix A - lk_study_condition_pref_mappng for Pref Mapping with preferred column(s) disease_preferred.
Comment:	This indicates the specific disease of the host associated with the exposure. Please select a disease from the list provided if the disease matches yours or enter a disease if there is not an appropriate one provided. This disease is visible when the result is shared. The Value provide by the user is further checked against the pref mapping table lk_study_condition_pref_mappng.
Database Table:	immune_exposure
Database Column:	disease_reported
Database Column Type:	varchar(550)

Result Column subjectAnimals.txt : Disease Ontology ID	
Description:	The NCBI Disease Ontology ID associated with the disease. If the Disease Reported is not a preferred value, then the Disease Ontology ID must be provided. If the disease is a preferred value, then the Disease Ontology ID will be the DOID associated with the preferred value.
Required:	No
Lookup:	None
Comment:	The NCBI Disease Ontology ID associated with the disease. If the Disease Reported is not a preferred value, then the Disease Ontology ID must be provided. If the disease is a preferred value, then the Disease Ontology ID will be the DOID associated with the preferred value.
Database Table:	immune_exposure
Database Column:	disease_ontology_id
Database Column Type:	varchar(100)

Result Column subjectAnimals.txt : Disease Stage Reported

Description:	This provides a broad classification of how the disease has progressed. Please select a disease stage from the list provided if the disease stage matches yours or enter a disease stage if there is not an appropriate one provided. This disease stage is visible when the result is shared.
Required:	No
Preferred Lookup:	Please refer to Appendix A - lk_disease_stage with preferred column(s) disease_stage_preferred.
Comment:	This provides a broad classification of how the disease has progressed. Please select a disease stage from the list provided if the disease stage matches yours or enter a disease stage if there is not an appropriate one provided. This disease stage is visible when the result is shared.
Database Table:	immune_exposure
Database Column:	disease_stage_reported
Database Column Type:	varchar(100)

65. **subjectHumans.txt**

The subject human template defines and annotates key elements of study subjects including demographics and links subjects to an arm within a study.

65.1. Subject Meta Data Columns

The Subject Meta Data Columns include the columns for the combined entity Subject.

Subject Meta Data Column subjectHumans.txt : Subject ID	
Description:	The subject defined ID is an identifier chosen by the data provider to refer to a subject. This ID may be referenced by other data records (e.g. biological sample). The user defined ID is not shared. For human subjects, the ID should not be identifying.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	subject
Database Column:	user_defined_id
Database Column Type:	varchar(100)

Subject Meta Data Column subjectHumans.txt : Sex	
Description:	A list of preferred terms is available.
Conditional Required:	Yes for **New Subject**
Controlled Lookup:	Please refer to Appendix A - lk_human_sex.
Comment:	Please choose from the drop down list.
Database Table:	subject
Database Column:	gender
Database Column Type:	varchar(20)

Subject Meta Data Column subjectHumans.txt : Min Subject Age	
Description:	The subject age at the outset of the study may be determined form one of several study milestones as indicated in the Age Event column.
Conditional Required:	Yes for **New Subject**
Lookup:	None
Comment:	Please enter a number.
Database Table:	arm_2_subject
Database Column:	min_subject_age
Database Column Type:	float

Subject Meta Data Column subjectHumans.txt : Max Subject Age	
Description:	The subject age at the end of the study may be determined form one of several study milestones.
Required:	No
Lookup:	None
Comment:	Please enter a number.
Database Table:	arm_2_subject
Database Column:	max_subject_age
Database Column Type:	float

Subject Meta Data Column subjectHumans.txt : Age Unit	
Description:	A list of preferred terms is available. The age unit must conform to the age unit assigned to the study.

Conditional Required:	Yes for **New Subject**
Controlled Lookup:	Please refer to Appendix A - lk_time_unit.
Comment:	Please choose from the drop down list. The age unit must conform to the age unit assigned to the study.
Database Table:	arm_2_subject
Database Column:	age_unit
Database Column Type:	varchar(25)

Subject Meta Data Column subjectHumans.txt : Age Event	
Description:	A list of preferred terms is available.
Conditional Required:	Yes for **New Subject**
Controlled Lookup:	Please refer to Appendix A - lk_age_event.
Comment:	Please choose from the drop down list.
Database Table:	arm_2_subject
Database Column:	age_event
Database Column Type:	varchar(40)

Subject Meta Data Column subjectHumans.txt : Age Event Specify	
Description:	This column supports providing study milestones for subject's age determination that ImmPort does not support.
Required:	No
Lookup:	None

Comment:	If "Age Event" = Other, this field specifies the age event (free text). Otherwise, leave this column blank.
Database Table:	arm_2_subject
Database Column:	age_event_specify
Database Column Type:	varchar(50)

Subject Meta Data Column subjectHumans.txt : Subject Phenotype	
Description:	The subject phenotype captures key aspects of the subject's disposition for the study.
Required:	No
Lookup:	None
Comment:	Enter a description of the subject.
Database Table:	arm_2_subject
Database Column:	subject_phenotype
Database Column Type:	varchar(200)

Subject Meta Data Column subjectHumans.txt : Subject Location	
Description:	A list of subject locations is available.
Conditional Required:	Yes for **New Subject**
Controlled Lookup:	Please refer to Appendix A - lk_subject_location.
Comment:	Please choose from the drop down list.
Database Table:	arm_2_subject
Database Column:	subject_location

Database Column Type:	varchar(50)

Subject Meta Data Column subjectHumans.txt : Ethnicity	
Description:	A list of preferred terms is available.
Conditional Required:	Yes for **New Subject**
Controlled Lookup:	Please refer to Appendix A - lk_ethnicity.
Comment:	Please choose from the drop down list.
Database Table:	subject
Database Column:	ethnicity
Database Column Type:	varchar(50)

Subject Meta Data Column subjectHumans.txt : Race	
Description:	A list of preferred terms is available.
Conditional Required:	Yes for **New Subject**
Controlled Lookup:	Please refer to Appendix A - lk_race.
Comment:	Please choose from the drop down list.
Database Table:	subject
Database Column:	race
Database Column Type:	varchar(50)

Subject Meta Data Column subjectHumans.txt : Race Specify

Description:	This column supports providing subject race descriptions that ImmPort does not support.
Required:	No
Lookup:	None
Comment:	If Race='Other', the race should be specified, otherwise leave blank.
Database Table:	subject
Database Column:	race_specify
Database Column Type:	varchar(1000)

Subject Meta Data Column subjectHumans.txt : Description	
Description:	The subject description may be used to augment the arm or cohort based description of a subject.
Required:	No
Lookup:	None
Comment:	The subject description may be used to augment the arm or cohort based description of a subject.
Database Table:	subject
Database Column:	description
Database Column Type:	varchar(4000)

65.2. Arm Or Cohort Meta Data Column

The Arm Or Cohort Meta Data Columns include the columns for the combined entity Arm Or Cohort.

Arm Or Cohort Meta Data Column subjectHumans.txt : Arm Or Cohort ID	
Description:	A subject may be assigned to a single arm within a study. When subjects are initially uploaded to ImmPort, they may be assigned to a single study's arm.

Required:	Yes
Lookup:	None
Comment:	Please enter either a study arm or cohort user defined ID or ImmPort accession. When subjects are initially uploaded to ImmPort, they may be assigned to a single study's arm.
Database Table:	arm_or_cohort
Database Column:	user_defined_id
Database Column Type:	varchar(100)

65.3. Separator Column

This column must always appear in the template and must immediately follow after the last meta data column and before the (repeating) result column groups.

Separator Column subjectHumans.txt : Result Separator Column	
Description:	This pseudo column separates meta data from results.
Required:	No
Lookup:	None
Comment:	This pseudo column separates the results (lab tests) from the lab test panel meta data. It must always appear and be the column that appears immediately after the last meta-data column and before any result columns.

65.4. Result Columns

Each result group (that is, result) consists of a group of the following result columns, where the **first column** of the group must always be '**Exposure Process Reported**'.

Table: Exposure Process Reported Conditional Logic

The following Matrix defines what reported template columns are required (XXXXX) for a given 'Exposure Process Reported' template column value. N.B. If multiple immune exposure values are needed for subject (e.g. more than one vaccine is administered), then multiple rows must be added to the template with the same 'Exposure Process Reported' column value. The 'Exposure Material ID' (YYYYY) is also required when the 'Exposure Material Reported' is required. However, if the 'Exposure Process Reported' is preferred value (contained in lk_exposure_material or lk_exposue_material_pref_map), the the column 'Exposure Material ID' can be left blank and it will

be filled in by uploader.

Exposure Process Reported	Exposure Material Reported	Exposure Material ID	Disease Reported	Disease Ontology ID	Disease Stage Reported
administering substance in vivo	XXXXX	XXXXX			
documented exposure without evidence for disease	XXXXX	XXXXX			
environmental exposure to endemic/ubiquitous agent without evidence for disease	XXXXX	XXXXX			
exposure to substance without evidence for disease	XXXXX	XXXXX			
exposure with existing immune reactivity without evidence for disease	XXXXX	XXXXX			
infectious challenge	XXXXX	XXXXX			
occurrence of allergy	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX
occurrence of asymptomatic infection	XXXXX	XXXXX			
occurrence of autoimmune disease			XXXXX	XXXXX	XXXXX
occurrence of cancer			XXXXX	XXXXX	XXXXX

occurrence of disease			XXXXX	XXXXX	XXXXX
occurrence of infectious disease	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX
transplantation or transfusion	XXXXX	XXXXX			
vaccination	XXXXX	XXXXX			

Result Column subjectHumans.txt : Exposure Process Reported	
Description:	This identifies the type of process through which a host is exposed and the type of evidence for that exposure to have happened, which are tightly intertwined. This is the only element of the four that is always mandatory. Please select an exposure process from the list provided if the process matches yours or enter a exposure process if there is not an appropriate one provided. This exposure process is visible when the result is shared. The value provided by the user is further checked against the pref mapping table lk_exposure_process_pref_map.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_exposure_process with preferred column(s) exposure_process_preferred. Also, please refer to Appendix A - lk_exposure_process_pref_map for Pref Mapping with preferred column(s) exposure_process_preferred.
Comment:	This identifies the type of process through which a host is exposed and the type of evidence for that exposure to have happened, which are tightly intertwined. This is the only element of the four that is always mandatory. Please select an exposure process from the list provided if the process matches yours or enter a exposure process if there is not an appropriate one provided. This exposure process is visible when the result is shared. The value provided by the user is further checked against the pref mapping table lk_exposure_process_pref_map.
Database Table:	immune_exposure
Database Column:	exposure_process_reported
Database Column Type:	varchar(100)

Result Column subjectHumans.txt : Exposure Material Reported

Description:	This describes what substance(s) the host is exposed to and/or develops immune reactions to as part of the exposure process. Please select an exposure material from the list provided if the exposure material matches yours or enter a exposure material if there is not an appropriate one provided. This exposure material is visible when the result is shared. The value provided by the user is further checked against the pref mapping table lk_exposure_material_pref_map.
Required:	No
Preferred Lookup:	Please refer to Appendix A - lk_exposure_material with preferred column(s) exposure_material_preferred and exposure_material_id. Also, please refer to Appendix A - lk_exposure_material_pref_map for Pref Mapping with preferred column(s) exposure_material_preferred.
Comment:	This describes what substance(s) the host is exposed to and/or develops immune reactions to as part of the exposure process. Please select an exposure material from the list provided if the exposure material matches yours or enter a exposure material if there is not an appropriate one provided. This exposure material is visible when the result is shared. The value provided by the user is further checked against the pref mapping table lk_exposure_material_pref_map.
Database Table:	immune_exposure
Database Column:	exposure_material_reported
Database Column Type:	varchar(200)

Result Column subjectHumans.txt : Exposure Material ID	
Description:	The NCBI or Vaccine Ontology ID associated with the exposure material. If the Exposure Material Reported is not a preferred value, then the Exposure Material ID must be provided. If the Exposure Material Reported is a preferred value, then the Exposure Material ID will be automatically be the ID associated with the preferred value and user will NOT need to supply this ID.
Required:	No
Lookup:	None
Comment:	The NCBI or Vaccine Ontology ID associated with the exposure material. If the Exposure Material Reported is not a preferred value, then the Exposure Material ID must be provided. If the Exposure Material Reported is a preferred value, then the Exposure Material ID will be automatically be the ID associated with the preferred value and user will NOT need to supply this ID.
Database Table:	immune_exposure
Database Column:	exposure_material_id

Database Column Type:	varchar(100)

Result Column subjectHumans.txt : Disease Reported	
Description:	This indicates the specific disease of the host associated with the exposure. Please select a disease from the list provided if the disease matches yours or enter a disease if there is not an appropriate one provided. This disease is visible when the result is shared. The Value provide by the user is further checked against the pref mapping table lk_study_condition_pref_mappng.
Required:	No
Preferred Lookup:	Please refer to Appendix A - lk_disease with preferred column(s) disease_preferred and disease_ontology_id. Also, please refer to Appendix A - lk_study_condition_pref_mappng for Pref Mapping with preferred column(s) disease_preferred.
Comment:	This indicates the specific disease of the host associated with the exposure. Please select a disease from the list provided if the disease matches yours or enter a disease if there is not an appropriate one provided. This disease is visible when the result is shared. The Value provide by the user is further checked against the pref mapping table lk_study_condition_pref_mappng.
Database Table:	immune_exposure
Database Column:	disease_reported
Database Column Type:	varchar(550)

Result Column subjectHumans.txt : Disease Ontology ID	
Description:	The NCBI Disease Ontology ID associated with the disease. If the Disease Reported is not a preferred value, then the Disease Ontology ID must be provided. If the disease is a preferred value, then the Disease Ontology ID will be the DOID associated with the preferred value.
Required:	No
Lookup:	None
Comment:	The NCBI Disease Ontology ID associated with the disease. If the Disease Reported is not a preferred value, then the Disease Ontology ID must be provided. If the disease is a preferred value, then the Disease Ontology ID will be the DOID associated with the preferred value.
Database Table:	immune_exposure

Database Column:	disease_ontology_id
Database Column Type:	varchar(100)

Result Column subjectHumans.txt : Disease Stage Reported	
Description:	This provides a broad classification of how the disease has progressed. Please select a disease stage from the list provided if the disease stage matches yours or enter a disease stage if there is not an appropriate one provided. This disease stage is visible when the result is shared.
Required:	No
Preferred Lookup:	Please refer to Appendix A - lk_disease_stage with preferred column(s) disease_stage_preferred.
Comment:	This provides a broad classification of how the disease has progressed. Please select a disease stage from the list provided if the disease stage matches yours or enter a disease stage if there is not an appropriate one provided. This disease stage is visible when the result is shared.
Database Table:	immune_exposure
Database Column:	disease_stage_reported
Database Column Type:	varchar(100)

66. **treatments.txt**

The treatment template defines and annotates the in vitro modifications (molecule added, temperature, duration) made to a sample. Treatments are required to be referenced by experiment samples and optionally by biologic samples.

treatments.txt : User Defined ID	
Description:	The treatment user defined ID is an identifier chosen by the data provider to refer to a treatment agent which can be a molecule, time or temperature. This ID may be referenced by other data records (e.g. study). The user defined ID is not shared.
Required:	Yes
Lookup:	None
Comment:	The identifier should be unique to the ImmPort workspace to which the data will be uploaded.
Database Table:	treatment
Database Column:	user_defined_id
Database Column Type:	varchar(100)

treatments.txt : Name	
Description:	The treatment name is not referenced directly by other data records. The name should be an informative to a researcher reviewing the data. Treatments may be referenced by more than one biological or experiment sample. There are three categories to describe the molecular content, time and/or temperature applied in a sample treatment. You may enter data for amount, duration or temperature only any combination of these categories (e.g. amount and duration).
Required:	Yes
Lookup:	None
Comment:	Treatments refer to in vitro modifications of samples. The treatment name is an alternate identifier that is visible when the treatment is shared.
Database Table:	treatment
Database Column:	name

Database Column Type:	varchar(100)

treatments.txt : Use Treatment?	
Description:	If 'No' is selected, you must enter a value in the Treatment User Defined ID and Name columns and that is all. If 'Yes' is selected, you must enter a value in the Treatment User Defined ID and Name columns and the value/unit pair of columns for amount or duration or temperature.
Required:	Yes
Controlled Lookup:	Please refer to Appendix A - lk_yes_no.
Comment:	Was a treatment applied to a sample?

treatments.txt : Amount Value	
Description:	The value should be a number.
Required:	No
Lookup:	None
Comment:	The Amount Value indicates how much (concentration, mass, volume) of a treatment agent was applied to a sample.
Database Table:	treatment
Database Column:	amount_value
Database Column Type:	varchar(50)

treatments.txt : Amount Unit	
Description:	The amount unit preferred terms list has commonly used units. If additional units are needed, please contact the ImmPort HelpDesk.
Required:	No
Controlled Lookup:	Please refer to Appendix A - lk_amount_unit.

Comment:	The unit should be selected from the drop down list.
Database Table:	treatment
Database Column:	amount_unit
Database Column Type:	varchar(50)

treatments.txt : Duration Value	
Description:	The Duration Value indicates how long a treatment agent was applied to a sample.
Required:	No
Lookup:	None
Comment:	The value should be a number.
Database Table:	treatment
Database Column:	duration_value
Database Column Type:	varchar(200)

treatments.txt : Duration Unit	
Description:	The duration unit preferred terms list has commonly used units. If additional units are needed, please contact the ImmPort HelpDesk.
Required:	No
Controlled Lookup:	Please refer to Appendix A - lk_time_unit.
Comment:	The unit should be selected from the drop down list.
Database Table:	treatment
Database Column:	duration_unit

Database Column Type:	varchar(25)

treatments.txt : Temperature Value	
Description:	The Temperature Value indicates how long a treatment agent was applied to a sample.
Required:	No
Lookup:	None
Comment:	The value should be a number.
Database Table:	treatment
Database Column:	temperature_value
Database Column Type:	varchar(50)

treatments.txt : Temperature Unit	
Description:	The temperature unit preferred terms list has commonly used units. If additional units are needed, please contact the ImmPort HelpDesk.
Required:	No
Controlled Lookup:	Please refer to Appendix A - lk_temperature_unit.
Comment:	The unit should be selected from the drop down list.
Database Table:	treatment
Database Column:	temperature_unit
Database Column Type:	varchar(50)

treatments.txt : Comments

Description:	The Comments column allows the data provider to provide additional descriptive information.
Required:	No
Lookup:	None
Comment:	Please provide additional comments as needed.
Database Table:	treatment
Database Column:	comments
Database Column Type:	varchar(500)

67. **Virus_Neutralization_Results.txt**

The virus neutralization experiment sample template defines and annotates the assay results for a sample by linking sample, experiment, and results together. More than one analyte's results per assayed sample may be reported by copying the group of columns 'Virus Strain'and 'Titration Dilution Value' needed to describe each assay result.

Virus_Neutralization_Results.txt : Expsample ID	
Description:	The experiment sample identifier must be stored in ImmPort or in the experimentsamples.txt template.
Required:	Yes
Lookup:	None
Comment:	Please enter either an experiment sample user defined ID or ImmPort accession.
Database Table:	neut_ab_titer_result And expsample_2_file_info
Database Column:	expsample_accession
Database Column Type:	varchar(15)

Virus_Neutralization_Results.txt : Virus Strain Reported	
Description:	The name of the virus strain used in the assay. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_virus_strain with preferred column(s) virus_strain_preferred.
Comment:	The name of the virus strain used in the assay. Please select a name from the list provided if the name matches your name or enter a name if there is not an appropriate one provided. This name is visible when the result is shared.
Database Table:	neut_ab_titer_result
Database Column:	virus_strain_reported
Database Column Type:	varchar(200)

Virus_Neutralization_Results.txt : Value Reported	
Description:	The maximum sample dilution factor that continues to demonstrate virus neutralization.
Required:	Yes
Lookup:	None
Comment:	A number is expected.
Database Table:	neut_ab_titer_result
Database Column:	value_reported
Database Column Type:	varchar(50)

Virus_Neutralization_Results.txt : Unit Reported	
Description:	The dilution factor unit.
Required:	Yes
Preferred Lookup:	Please refer to Appendix A - lk_titer_unit with preferred column(s) titer_unit_preferred.
Comment:	The dilution factor unit.
Database Table:	neut_ab_titer_result
Database Column:	unit_reported
Database Column Type:	varchar(200)

Virus_Neutralization_Results.txt : Comments	
Description:	Comments captures additional descriptive information.
Required:	No
Lookup:	None

Comment:	Comments captures additional descriptive information.
Database Table:	neut_ab_titer_result
Database Column:	comments
Database Column Type:	varchar(500)

Appendix A - Valid Values for the Lookup tables

1. **lk_adverse_event_severity**

Name	Description	Link
severity_preferred		
Grade 1 Mild Adverse Event	A type of adverse event that is usually transient and may require only minimal treatment or therapeutic intervention. The event does not generally interfere with usual activities of daily living.	http://purl.obolibrary.org/obo/NCIT_C41338
Grade 2 Moderate Adverse Event	A type of adverse event that is usually alleviated with additional specific therapeutic intervention. The event interferes with usual activities of daily living, causing discomfort but poses no significant or permanent risk of harm to the research participant.	http://purl.obolibrary.org/obo/NCIT_C41339
Grade 3 Severe Adverse Event	A type of adverse event that requires intensive therapeutic intervention. The event interrupts usual activities of daily living, or significantly affects clinical status. The event possesses a significant risk of harm to the research participant and hospitalization may be required.	http://purl.obolibrary.org/obo/NCIT_C41340
Grade 4 Life Threatening or Disabling Adverse Event	An adverse event, and/or its immediate sequelae, which is associated with an imminent risk of death or which is associated with physical or mental disabilities that affect or limit the ability of a person to perform activities of daily living (eating, ambulation, toileting, etc.)	http://purl.obolibrary.org/obo/NCIT_C41337
Grade 5 Death Related to Adverse Event	The termination of life as a result of an adverse event.	http://purl.obolibrary.org/obo/NCIT_C48275
Not Specified	Adverse Event is not specified or not received. If no Adverse Event value is received, then this is the system default value.	

2. **lk_age_event**

Name	Description	Link

Age at enrollment	Age Event is the Age at enrollment. In the case of a subject enrolled in multiple studies, this value is the minimum age for all the studies.	http://purl.obolibrary.org/obo/PATO_0000011
Age at infection	Age Event is the Age at infection.	http://purl.obolibrary.org/obo/PATO_0000011
Age at initial treatment	Age Event is the Age at initial treatment.	http://purl.obolibrary.org/obo/PATO_0000011
Age at initial vaccine administration	Age Event is the Age at initial vaccine administration.	http://purl.obolibrary.org/obo/PATO_0000011
Age at Study Day 0	Age Event is the Age at Study Day 0.	http://purl.obolibrary.org/obo/PATO_0000011
Not Specified	Age Event is not specified or not received. If no Age Event value is received, then this is the system default value.	http://purl.obolibrary.org/obo/PATO_0000011
Other	Age Event is some Other value not in CV Terms.	http://purl.obolibrary.org/obo/PATO_0000011
Postmenstrual age	Best estimate of the first day of last menstrual period to birth plus time elapsed from day of birth. [def-source: NCI][attr: NICHD]	http://purl.obolibrary.org/obo/NCIT_C114090

3. **lk_amount_unit**

Name	Description	Link
AFU	Arbitrary Fluorescence Units	http://purl.obolibrary.org/obo/NCIT_C77534
AI	Antibody Index	https://www.aacc.org/publications/cln/articles/2014/june/ana-testing
AU/ml	Unit of measure of potency of allergenic product expressed as a number of allergy units per one milliliter of formulation.	http://purl.obolibrary.org/obo/NCIT_C70504

cells/kg body weight	Cells per kg body weight	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4138781/
CFU/ml	A derived unit of viable cell concentration defined as the number of colony forming units in one milliliter of substance	http://purl.obolibrary.org/obo/NCIT_C68902
DK units/ml	The NIDDK calibrators were tested together with dilutions of the WHO reference serum using harmonized assays on five occasions in the BDC, Bristol, and Munich laboratories and reported as WHO units/ml by calibration as previously described. For each of the NIDDK calibrators, the median value of the WHO units/ml obtained for the 15 measurements was assigned as its calibrator unit. The assigned units were termed digestive and kidney units (DK units)/ml.	https://repository.niddk.nih.gov/studies/aab-calibrators/
g/dl	A unit of mass concentration defined as the concentration of one gram of a substance per unit volume of the mixture equal to one deciliter (100 milliliters). The concept also refers to the metric unit of mass density (volumic mass) defined as the density of substance which mass equal to one gram occupies the volume one deciliter.	http://purl.obolibrary.org/obo/NCIT_C64783
g/l	grams per liter	http://purl.obolibrary.org/obo/UO_0000175
gm	gram	http://purl.obolibrary.org/obo/UO_0000021
Gy	A SI derived unit of absorbed radiation dose. One gray is equal to an absorbed dose of one joule per kilogram of matter, or to 100 rads.	https://uts.nlm.nih.gov/uts/umls/concept/C0556636
HAU	hemagglutination units	http://en.wikipedia.org/wiki/Virus_quantification

IU	The unitage assigned by the WHO to International Biological Standards - substances, classed as biological according to the criteria provided by WHO Expert Committee on Biological Standardization (e.g. hormones, enzymes, and vaccines), to enable the results of biological and immunological assay procedures to be expressed in the same way throughout the world. The definition of an international unit is generally arbitrary and technical, and has to be officially approved by the International Conference for Unification of Formulae.	http://purl.obolibrary.org/obo/NCIT_C48579
iu/l	Unit of arbitrary substance concentration (biologic activity concentration) defined as the concentration of one international unit per one liter of the system volume.	http://purl.obolibrary.org/obo/NCIT_C67376
IU/ml	A unit of arbitrary substance concentration (biologic activity concentration) defined as the concentration of one international unit per one milliliter of system volume.	http://purl.obolibrary.org/obo/NCIT_C67377
Kallikrein Inactivator Unit per Milliliter	An arbitrary unit of a kallikrein inactivator concentration equal to the concentration at which one milliliter of the mixture contains one unit of the kallikrein inactivator.	http://purl.obolibrary.org/obo/NCIT_C73531
kg	A basic SI unit of mass. It is defined as the mass of an international prototype in the form of a platinum-iridium cylinder kept at Sevres in France. A kilogram is equal to 1,000 grams and 2.204 622 6 pounds.	http://purl.obolibrary.org/obo/NCIT_C28252
l	The non-SI unit of volume accepted for use with the SI. One liter is equal to cubic decimeter, or one thousandth of cubic meter, or 1000 cubic centimeters, or approximately 61.023 744 cubic inches.	http://purl.obolibrary.org/obo/NCIT_C48505
M	molar	http://purl.obolibrary.org/obo/UO_0000062
mg	milligram	http://purl.obolibrary.org/obo/UO_0000022

mg/dl	A unit of mass concentration defined as the concentration of one milligram of a substance in unit volume of the mixture equal to one cubic deciliter or 100 cubic centimeters. It is also a unit of mass density (volumic mass) defined as the density of substance which mass equal to one milligram occupies the volume one cubic deciliter or 100 cubic centimeters.	http://purl.obolibrary.org/obo/NCIT_C67015
mg/l	A metric unit of mass concentration defined as the concentration of one gram of a substance per unit volume of the mixture equal to one cubic meter. The concept also refers to the metric unit of mass density (volumic mass) defined as the density of a substance which mass equal to one gram occupies the volume of one cubic meter.	http://purl.obolibrary.org/obo/NCIT_C64572
mg/ml	microgram per milliliter	http://purl.bioontology.org/ontology/SNOMEDCT/258798001
miu/ml	Unit of arbitrary substance concentration (biologic activity concentration) defined as the concentration of one international unit per one liter of the system volume.	http://purl.obolibrary.org/obo/NCIT_C67376
ml	milliliter	http://purl.obolibrary.org/obo/UO_0000098
mM	millimolar	http://purl.obolibrary.org/obo/UO_0000063
MOI	multiplicity of infection	http://en.wikipedia.org/wiki/Multiplicity_of_infection
ng	nanogram	http://purl.obolibrary.org/obo/UO_0000024

ng/dl	A unit of mass concentration defined as the concentration of one nanogram of a substance per unit volume of the mixture equal to one deciliter. The concept also refers to the unit of mass density (volumic mass) defined as the density of substance which mass equal to one nanogram occupies the volume of one deciliter.	http://purl.obolibrary.org/obo/NCIT_C67326
ng/ml	nanogram per milliliter	http://purl.bioontology.org/ontology/SNOMEDCT/258806002
ng/nl	nanogram per nanoliter	
ng/ul	nanogram per microliter	http://purl.bioontology.org/ontology/SNOMEDCT/272082007
nl	nanoliter	http://purl.obolibrary.org/obo/UO_0000102
nM	nanomolar	http://purl.obolibrary.org/obo/UO_0000065
Not Specified	No value provided. Not stated explicitly or in detail.	http://purl.obolibrary.org/obo/NCIT_C38046
NPX	NPX, Normalized Protein eXpression, is Olink's arbitrary unit which is in Log2 scale. It is calculated from Ct values and data pre-processing (normalization) is performed to minimize both intra- and inter-assay variation. NPX data allows users to identify changes for individual protein levels across their sample set, and then use this data to establish protein signatures. The NPX scale is inverted compared to that of Ct. This means that a high NPX value equals a high protein concentration. Because NPX is in a log2 scale, a 1 NPX difference means a doubling of protein concentration. If needed NPX values can be converted into linear scale: 2^NPX= linear NPX.	https://www.olink.com/question/what-is-npx/

optical density	The measurement of the light transmitted through a sample for a given wavelength. [database_cross_reference: ISBN:038733341X]	http://purl.obolibrary.org/obo/CHMO_0002039
PFU	Plaque-forming unit. A measure of viable infectious entities (e.g. viral particles or group of particles) in the specimen or product defined as the smallest quantity that can produce a cytopathic effect in the host cell culture challenged with the defined inoculum, visible under the microscope and/or to the naked eye as a plaque. A number of plaque forming units (PFU) per unit volume is a conventional way to refer the titer of an infective entity in a specimen or preparation.	http://purl.obolibrary.org/obo/NCIT_C67264
PFUe	Plaque-forming unit equivalents	http://purl.obolibrary.org/obo/NCIT_C67264
pg	picogram	http://purl.obolibrary.org/obo/UO_0000025
pg/mg creatinine	Protein/Creatinine [Ratio] in Urine	http://purl.obolibrary.org/obo/NCIT_C85780
pg/ml	picogram per milliliter	http://purl.obolibrary.org/obo/NCIT_C67327
pg/nl	picogram per nanoliter	
pg/ul	picogram per microliter	http://purl.obolibrary.org/obo/NCIT_C67306
pl	picoliter	http://purl.obolibrary.org/obo/UO_0000103
pM	picomolar	http://purl.obolibrary.org/obo/UO_0000066
Pound	The traditional unit of mass. By international agreement, one avoirdupois pound is equal to exactly 0.453 592 37 kilogram, 16 ounces, or 1.215 28 troy pounds.	http://purl.obolibrary.org/obo/NCIT_C48531
TCID50	mean tissue culture infective dose	http://en.wikipedia.org/wiki/Virus_quantification

Thousand Cells per Microliter	A unit of cell concentration expressed as a number of cells in thousands per unit volume equal to one microliter. Synonyms: 10E3 Cells/uL, Kcells/ul.	https://uts.nlm.nih.gov/uts/umls/concept/C1883312
ug	microgram	http://purl.obolibrary.org/obo/UO_0000023
ug/dl	A unit of mass concentration defined as the concentration of one microgram of a substance per unit volume of the mixture equal to one deciliter. The concept also refers to the unit of mass density (volumic mass) defined as the density of substance which mass equal to one microgram occupies the volume one deciliter.	http://purl.obolibrary.org/obo/NCIT_C67305
ug/l	A unit of mass concentration defined as the concentration of one microgram of a substance per unit volume of the mixture equal to one liter. The concept also refers to the unit of mass density (volumetric mass) defined as the density of a substance which mass equal to one microgram occupies the volume of one liter.	http://purl.obolibrary.org/obo/NCIT_C67306
ug/ml	microgram per milliliter	http://purl.bioontology.org/ontology/SNOMEDCT/258801007
ug/ul	microgram per microliter	http://purl.obolibrary.org/obo/NCIT_C42576
uiu/ml	Unit of arbitrary substance concentration (biologic activity concentration) defined as the concentration of one millionth of international unit per one milliliter of system volume.	http://purl.obolibrary.org/obo/NCIT_C67405
ul	microliter	http://purl.obolibrary.org/obo/UO_0000101
uM	micromolar	http://purl.bioontology.org/ontology/SNOMEDCT/258814008
umol/l	A unit of concentration (molarity unit) equal to one one-millionth of a mole (10E-6 mole) of solute per one liter of solution.	http://purl.obolibrary.org/obo/NCIT_C48508

units/ml	Enzyme Unit per Milliliter. Unit of catalytic activity concentration defined as activity equal to one enzyme unit per one milliliter of system volume.	http://purl.bioontology.org/ontology/SNOMEDCT/259002007

4. **lk_analyte**

Name	Description	Link	ID
immunology_symbol ; short_label ; analyte_preferred			
- ; hHLA-A*2 ; ANA975	HLA class I histocompatibility antigen, A-2 alpha chain (human)	http://purl.obolibrary.org/obo/PR_P01892	-
AA4 ; hCD93 ; ANA918	complement component C1q receptor (human)	http://purl.obolibrary.org/obo/PR_Q9NPY3	-
ACKR3 ; hACKR3 ; ANA1	atypical chemokine receptor 3 (human)	http://www.ncbi.nlm.nih.gov/gene/57007	57007
Ackr3 ; mACKR3 ; ANA475	atypical chemokine receptor 3 (mouse)	http://www.ncbi.nlm.nih.gov/gene/12778	12778
AFP ; AFP ; ANA704	AFP (human)	http://www.ncbi.nlm.nih.gov/gene/174	174
Annexin ; hANXA5 ; ANA909	annexin A5 (human)	http://purl.obolibrary.org/obo/PR_P08758	-
B7 ; hCD80 ; ANA866	T-lymphocyte activation antigen CD80 (human)	https://www.ncbi.nlm.nih.gov/gene/941	941
B7-2 ; hCD86 ; ANA868	T-lymphocyte activation antigen CD86 (human)	https://www.ncbi.nlm.nih.gov/gene/942	942
BAFF ; hTNFSF13B ; ANA241	tumor necrosis factor ligand superfamily member 13B (human)	http://www.ncbi.nlm.nih.gov/gene/10673	10673

BCL2 ; hBCL2 ; ANA904	apoptosis regulator Bcl-2 (human)	https://www.ncbi.nlm.nih.gov/gene/596	596
Bcl2 ; mBCL2 ; ANA1005	apoptosis regulator Bcl-2 (mouse)	http://purl.obolibrary.org/obo/PR_P10417	12043
BCL6 ; hBCL6 ; ANA910	B-cell lymphoma 6 protein (human)	http://purl.obolibrary.org/obo/PR_P41182	-
Bcl6 ; mBCL6 ; ANA1110	B-cell lymphoma 6 protein homolog (mouse)	http://purl.obolibrary.org/obo/PR_P41183	12053
BDCA1 ; hCD1C ; ANA895	T-cell surface glycoprotein CD1c (human)	https://www.ncbi.nlm.nih.gov/gene/911	911
BDCA2, CD303 ; hCLEC4C ; ANA870	C-type lectin domain family 4 member C (human)	https://www.ncbi.nlm.nih.gov/gene/170482	170482
BDCA3 ; hTHBD ; ANA894	thrombomodulin (human)	https://www.ncbi.nlm.nih.gov/gene/7056	7056
BDNF ; BDNF ; ANA701	BDNF (human)	http://www.ncbi.nlm.nih.gov/gene/627	627
BOB ; hGPR15 ; ANA896	G-protein coupled receptor 15 (human)	https://www.ncbi.nlm.nih.gov/gene/2838	2838
Caspase-3 ; hCASP3 ; ANA911	caspase-3 (human)	http://purl.obolibrary.org/obo/PR_P42574	-
CCL1 ; hCCL1 ; ANA2	C-C motif chemokine 1 (human)	http://www.ncbi.nlm.nih.gov/gene/6346	6346

Ccl1 ; mCCL1 ; ANA476	C-C motif chemokine 1 (mouse)	http://www.ncbi.nlm.nih.gov/gene/20290	20290
CCL14 ; hCCL14 ; ANA5	C-C motif chemokine 14 (human)	http://www.ncbi.nlm.nih.gov/gene/6358	6358
CCL15 ; hCCL15 ; ANA6	C-C motif chemokine 15 (human)	http://www.ncbi.nlm.nih.gov/gene/6359	6359
CCL16 ; hCCL16 ; ANA7	C-C motif chemokine 16 (human)	http://www.ncbi.nlm.nih.gov/gene/6360	6360
Ccl17 ; CCL17 ; ANA478	C-C motif chemokine 17	http://www.ncbi.nlm.nih.gov/gene/20295	20295
CCL18 ; hCCL18 ; ANA9	C-C motif chemokine 18 (human)	http://www.ncbi.nlm.nih.gov/gene/6362	6362
CCL19 ; hCCL19 ; ANA10	C-C motif chemokine 19 (human)	http://www.ncbi.nlm.nih.gov/gene/6363	6363
Ccl19 ; mCcl19 ; ANA479	C-C motif chemokine 19 (mouse)	http://www.ncbi.nlm.nih.gov/gene/24047	24047
Ccl2 ; mCCL2 ; ANA480	C-C motif chemokine 2 (mouse)	http://www.ncbi.nlm.nih.gov/gene/20296	20296
CCL20 ; hCCL20 ; ANA12	C-C motif chemokine 20 (human)	http://www.ncbi.nlm.nih.gov/gene/6364	6364
Ccl20 ; mCCL20 ; ANA481	C-C motif chemokine 20 (mouse)	http://www.ncbi.nlm.nih.gov/gene/20297	20297
CCL21 ; hCCL21 ; ANA13	C-C motif chemokine 21 (human)	http://www.ncbi.nlm.nih.gov/gene/6366	6366

Ccl21a ; mCcl21a ; ANA482	C-C motif chemokine 21a (mouse)	http://www.ncbi.nlm.nih.gov/gene/18829	18829
CCL22 ; hCCL22 ; ANA14	C-C motif chemokine 22 (human)	http://www.ncbi.nlm.nih.gov/gene/6367	6367
Ccl22 ; mCCL22 ; ANA483	C-C motif chemokine 22 (mouse)	http://www.ncbi.nlm.nih.gov/gene/20299	20299
CCL23 ; hCCL23 ; ANA15	C-C motif chemokine 23 (human)	http://www.ncbi.nlm.nih.gov/gene/6368	6368
CCL24 ; hCCL24 ; ANA16	C-C motif chemokine 24 (human)	http://www.ncbi.nlm.nih.gov/gene/6369	6369
Ccl24 ; mCCL24 ; ANA484	C-C motif chemokine 24 (mouse)	http://www.ncbi.nlm.nih.gov/gene/56221	56221
CCL25 ; hCCL25 ; ANA17	C-C motif chemokine 25 (human)	http://www.ncbi.nlm.nih.gov/gene/6370	6370
Ccl25 ; mCcl25 ; ANA485	C-C motif chemokine 25 (mouse)	http://www.ncbi.nlm.nih.gov/gene/20300	20300
Ccl26 ; CCL26 ; ANA486	C-C motif chemokine 26	http://www.ncbi.nlm.nih.gov/gene/541307	541307
CCL26 ; hCCL26 ; ANA18	C-C motif chemokine 26 (human)	http://www.ncbi.nlm.nih.gov/gene/10344	10344
Ccl27a ; mCCL27 ; ANA487	C-C motif chemokine 27 (mouse)	http://www.ncbi.nlm.nih.gov/gene/20301	20301

Ccl3 ; mCCL3 ; ANA488	C-C motif chemokine 3 (mouse)	http://www.ncbi.nlm.nih.gov/gene/20302	20302
CCL3L1 ; CCL3L1 ; ANA21	CCL3L1 (human)	http://www.ncbi.nlm.nih.gov/gene/6349	6349
CCL3L3 ; hCCL3L ; ANA22	C-C motif chemokine 3-like 1 (human)	http://www.ncbi.nlm.nih.gov/gene/414062	414062
CCL3P1 ; CCL3 ; ANA23	C-C motif chemokine 3	http://www.ncbi.nlm.nih.gov/gene/390788	390788
CCL4L1 ; CCL4L1 ; ANA25	CCL4L1 (human)	http://www.ncbi.nlm.nih.gov/gene/388372	388372
CCL4L2 ; hCCL4L ; ANA26	C-C motif chemokine 4-like (human)	http://www.ncbi.nlm.nih.gov/gene/9560	9560
Ccl5 ; mCCL5 ; ANA490	C-C motif chemokine 5 (mouse)	http://www.ncbi.nlm.nih.gov/gene/20304	20304
Ccl7 ; mCCL7 ; ANA491	C-C motif chemokine 7 (mouse)	http://www.ncbi.nlm.nih.gov/gene/20306	20306
CCL8 ; hCCL8 ; ANA29	C-C motif chemokine 8 (human)	http://www.ncbi.nlm.nih.gov/gene/6355	6355
Ccl8 ; mCcl8 ; ANA492	C-C motif chemokine 8 (mouse)	http://www.ncbi.nlm.nih.gov/gene/20307	20307
CCR1 ; hCCR1 ; ANA30	C-C chemokine receptor type 1 (human)	http://www.ncbi.nlm.nih.gov/gene/1230	1230

Ccr1 ; mCCR1 ; ANA493	C-C chemokine receptor type 1 (mouse)	http://www.ncbi.nlm.nih.gov/gene/12768	12768
CCR10 ; hCCR10 ; ANA31	C-C chemokine receptor type 10 (human)	http://www.ncbi.nlm.nih.gov/gene/2826	2826
Ccr10 ; mCCR10 ; ANA494	C-C chemokine receptor type 10 (mouse)	http://www.ncbi.nlm.nih.gov/gene/12777	12777
CCR2 ; hCCR2 ; ANA32	C-C chemokine receptor type 2 (human)	http://www.ncbi.nlm.nih.gov/gene/729230	729230
Ccr2 ; mCCR2 ; ANA495	C-C chemokine receptor type 2 (mouse)	http://www.ncbi.nlm.nih.gov/gene/12772	12772
CCR3 ; hCCR3 ; ANA33	C-C chemokine receptor type 3 (human)	http://www.ncbi.nlm.nih.gov/gene/1232	1232
Ccr3 ; mCCR3 ; ANA496	C-C chemokine receptor type 3 (mouse)	http://www.ncbi.nlm.nih.gov/gene/12771	12771
CCR4 ; hCCR4 ; ANA34	C-C chemokine receptor type 4 (human)	http://www.ncbi.nlm.nih.gov/gene/1233	1233
Ccr4 ; mCCR4 ; ANA497	C-C chemokine receptor type 4 (mouse)	http://www.ncbi.nlm.nih.gov/gene/12773	12773
CCR5 ; hCCR5 ; ANA35	C-C chemokine receptor type 5 (human)	http://www.ncbi.nlm.nih.gov/gene/1234	1234
Ccr5 ; mCCR5 ; ANA498	C-C chemokine receptor type 5 (mouse)	http://www.ncbi.nlm.nih.gov/gene/12774	12774
CCR6 ; hCCR6 ; ANA36	C-C chemokine receptor type 6 (human)	http://www.ncbi.nlm.nih.gov/gene/1235	1235

Ccr6 ; mCCR6 ; ANA499	C-C chemokine receptor type 6 (mouse)	http://www.ncbi.nlm.nih.gov/gene/12458	12458
CCR7 ; hCCR7 ; ANA37	C-C chemokine receptor type 7 (human)	http://www.ncbi.nlm.nih.gov/gene/1236	1236
Ccr7 ; mCCR7 ; ANA500	C-C chemokine receptor type 7 (mouse)	http://www.ncbi.nlm.nih.gov/gene/12775	12775
CCR8 ; hCCR8 ; ANA38	C-C chemokine receptor type 8 (human)	http://www.ncbi.nlm.nih.gov/gene/1237	1237
Ccr8 ; mCCR8 ; ANA501	C-C chemokine receptor type 8 (mouse)	http://www.ncbi.nlm.nih.gov/gene/12776	12776
CCR9 ; hCCR9 ; ANA824	C-C chemokine receptor type 9 (human)	https://www.ncbi.nlm.nih.gov/gene/10803	10803
Ccr9 ; mCCR9 ; ANA502	C-C chemokine receptor type 9 (mouse)	http://www.ncbi.nlm.nih.gov/gene/12769	12769
CCRL1 ; hCX3CR1 ; ANA59	CX3C chemokine receptor 1 (human)	http://www.ncbi.nlm.nih.gov/gene/1524	1524
CD10 ; hMME ; ANA930	neprilysin (human)	http://purl.obolibrary.org/obo/PR_P08473	-
CD100 ; hSEMA4D ; ANA1218	semaphorin-4D (human)	http://purl.obolibrary.org/obo/PR_Q92854	10507
CD101 ; hCD101 ; ANA1219	immunoglobulin superfamily member 2 (human)	http://purl.obolibrary.org/obo/PR_Q93033	9398

Cd101 ; mCD101 ; ANA942	immunoglobulin superfamily member 2 (mouse)	http://purl.obolibrary.org/obo/PR_A8E0Y8	630146
CD102 ; hICAM2 ; ANA1025	intercellular adhesion molecule 2 (human)	http://purl.obolibrary.org/obo/PR_P13598	3384
CD103 ; hITGAE ; ANA877	integrin alpha-E (human)	https://www.ncbi.nlm.nih.gov/gene/3682	3682
CD104 ; hITGB4 ; ANA1043	integrin beta-4 (human)	http://purl.obolibrary.org/obo/PR_P16144	3691
CD105 ; hENG ; ANA1050	endoglin (human)	http://purl.obolibrary.org/obo/PR_P17813	2022
CD107a ; hLAMP1 ; ANA887	lysosome-associated membrane glycoprotein 1 (human)	https://www.ncbi.nlm.nih.gov/gene/3916	3916
CD107b ; hLAMP2 ; ANA1024	lysosome-associated membrane glycoprotein 2 (human)	http://purl.obolibrary.org/obo/PR_P13473	3920
CD108 ; hSEMA7A ; ANA965	semaphorin-7A (human)	http://purl.obolibrary.org/obo/PR_O75326	8482
CD109 ; hCD109 ; ANA1188	CD109 antigen (human)	http://purl.obolibrary.org/obo/PR_Q6YHK3	135228
Cd109 ; mCD109 ; ANA1207	CD109 antigen (mouse)	http://purl.obolibrary.org/obo/PR_Q8R422	235505
CD111 ; hNECTIN1 ; ANA1158	nectin-1 (human)	http://purl.obolibrary.org/obo/PR_Q15223	5818

CD112 ; hNECTIN2 ; ANA1217	nectin-2 (human)	http://purl.obolibrary.org/obo/PR_Q92692	5819
CD11a ; hITGAL ; ANA1059	integrin alpha-L (human)	http://purl.obolibrary.org/obo/PR_P20701	3683
CD11b ; hITGAM ; ANA878	integrin alpha-M (human)	https://www.ncbi.nlm.nih.gov/gene/3684	3684
CD11c ; hITGAX ; ANA814	integrin alpha-X (human)	http://purl.obolibrary.org/obo/PR_P20702	3687
CD11d ; hITGAD ; ANA1153	integrin alpha-D (human)	http://purl.obolibrary.org/obo/PR_Q13349	3681
CD123 ; hIL3RA ; ANA173	interleukin-3 receptor subunit alpha (human)	http://www.ncbi.nlm.nih.gov/gene/3563	3563
CD127 ; hIL7R ; ANA182	interleukin-7 receptor subunit alpha (human)	http://www.ncbi.nlm.nih.gov/gene/3575	3575
CD13 ; hANPEP ; ANA1033	aminopeptidase N (human)	http://purl.obolibrary.org/obo/PR_P15144	290
CD133 ; hPROM1 ; ANA954	prominin-1 (human)	http://purl.obolibrary.org/obo/PR_O43490	8842
CD138 ; hSDC1 ; ANA891	syndecan-1 (human)	https://www.ncbi.nlm.nih.gov/gene/6382	6382
CD14 ; hCD14 ; ANA804	monocyte differentiation antigen CD14 (human)	http://purl.obolibrary.org/obo/PR_P08571	929

Cd14 ; mCD14 ; ANA1006	monocyte differentiation antigen CD14 (mouse)	http://purl.obolibrary.org/obo/PR_P10810	12475
CD142 ; hF3 ; ANA1028	tissue factor (human)	http://purl.obolibrary.org/obo/PR_P13726	2152
CD143 ; hACE ; ANA1019	angiotensin-converting enzyme (human)	http://purl.obolibrary.org/obo/PR_P12821	1636
CD144 ; hCDH5 ; ANA1095	cadherin-5 (human)	http://purl.obolibrary.org/obo/PR_P33151	1003
CD146 ; hMCAM ; ANA1115	cell surface glycoprotein MUC18 (human)	http://purl.obolibrary.org/obo/PR_P43121	4162
CD147 ; hBSG ; ANA1098	basigin (human)	http://purl.obolibrary.org/obo/PR_P35613	682
CD148 ; hPTPRJ ; ANA1151	receptor-type tyrosine-protein phosphatase eta (human)	http://purl.obolibrary.org/obo/PR_Q12913	5795
CD15 ; hFUT4 ; ANA875	alpha-(1,3)-fucosyltransferase 4 (human)	https://www.ncbi.nlm.nih.gov/gene/2526	2526
CD150 ; hSLAMF1 ; ANA1152	signaling lymphocytic activation molecule (human)	http://purl.obolibrary.org/obo/PR_Q13291	6504
CD151 ; hCD151 ; ANA1119	CD151 antigen (human)	http://purl.obolibrary.org/obo/PR_P48509	977
Cd151 ; mCD151 ; ANA953	CD151 antigen (mouse)	http://purl.obolibrary.org/obo/PR_O35566	12476

CD152 ; hCTLA4 ; ANA871	cytotoxic T-lymphocyte protein 4 (human)	https://www.ncbi.nlm.nih.gov/gene/1493	1493
CD154 ; hCD40LG ; ANA43	CD40 ligand (human)	http://www.ncbi.nlm.nih.gov/gene/959	959
CD155 ; hPVR ; ANA1034	poliovirus receptor (human)	http://purl.obolibrary.org/obo/PR_P15151	5817
CD156A ; hADAM8 ; ANA1131	disintegrin and metalloproteinase domain-containing protein 8 (human)	http://purl.obolibrary.org/obo/PR_P78325	101
CD156B ; hADAM17 ; ANA1133	disintegrin and metalloproteinase domain-containing protein 17 (human)	http://purl.obolibrary.org/obo/PR_P78536	6868
CD156c ; hADAM10 ; ANA948	disintegrin and metalloproteinase domain-containing protein 10 (human)	http://purl.obolibrary.org/obo/PR_O14672	102
CD157 ; hBST1 ; ANA1149	ADP-ribosyl cyclase/cyclic ADP-ribose hydrolase 2 (human)	http://purl.obolibrary.org/obo/PR_Q10588	683
CD158A ; hKIR2DL1 ; ANA879	killer cell immunoglobulin-like receptor 2DL1 (human)	https://www.ncbi.nlm.nih.gov/gene/3802	3802
CD158B1 ; hKIR2DL2 ; ANA880	killer cell immunoglobulin-like receptor 2DL2 (human)	https://www.ncbi.nlm.nih.gov/gene/3803	3803
CD158B2 ; hKIR2DL3 ; ANA881	killer cell immunoglobulin-like receptor 2DL3 (human)	https://www.ncbi.nlm.nih.gov/gene/3804	3804
CD158D ; hKIR2DL4 ; ANA1224	killer cell immunoglobulin-like receptor 2DL4 (human)	http://purl.obolibrary.org/obo/PR_Q99706	3805

CD158E1 ; hKIR3DL1 ; ANA882	killer cell immunoglobulin-like receptor 3DL1 (human)	https://www.ncbi.nlm.nih.gov/gene/3811	3811
CD158F ; hKIR2DL5A ; ANA1199	killer cell immunoglobulin-like receptor 2DL5A (human)	http://purl.obolibrary.org/obo/PR_Q8N109	57292
CD158G ; hKIR2DS5 ; ANA1156	killer cell immunoglobulin-like receptor 2DS5 (human)	http://purl.obolibrary.org/obo/PR_Q14953	3810
CD158H ; hKIR2DS1 ; ANA1157	killer cell immunoglobulin-like receptor 2DS1 (human)	http://purl.obolibrary.org/obo/PR_Q14954	3806
CD158i ; hKIR2DS4 ; ANA1118	killer cell immunoglobulin-like receptor 2DS4 (human)	http://purl.obolibrary.org/obo/PR_P43632	3809
CD158J ; hKIR2DS2 ; ANA1117	killer cell immunoglobulin-like receptor 2DS2 (human)	http://purl.obolibrary.org/obo/PR_P43631	100132285
CD158k ; hKIR3DL2 ; ANA1116	killer cell immunoglobulin-like receptor 3DL2 (human)	http://purl.obolibrary.org/obo/PR_P43630	3812
CD158z ; hKIR3DL3 ; ANA1204	killer cell immunoglobulin-like receptor 3DL3 (human)	http://purl.obolibrary.org/obo/PR_Q8N743	-
CD159c ; hKLRC2 ; ANA1080	NKG2-C type II integral membrane protein (human)	http://purl.obolibrary.org/obo/PR_P26717	3822
CD16 ; hFCGR3A ; ANA811	low affinity immunoglobulin gamma Fc region receptor III-A (human)	http://purl.obolibrary.org/obo/PR_P08637	2214
CD160 ; hCD160 ; ANA973	CD160 antigen (human)	http://purl.obolibrary.org/obo/PR_O95971	11126

Cd160 ; mCD160 ; ANA970	CD160 antigen (mouse)	http://purl.obolibrary.org/obo/PR_O88875	54215
CD161 ; hKLRB1 ; ANA883	killer cell lectin-like receptor subfamily B member 1 (human)	https://www.ncbi.nlm.nih.gov/gene/3820	3820
CD163 ; hCD163 ; ANA1192	scavenger receptor cysteine-rich type 1 protein M130 (human)	http://purl.obolibrary.org/obo/PR_Q86VB7	9332
Cd163 ; mCD163 ; ANA1164	scavenger receptor cysteine-rich type 1 protein M130 (mouse)	http://purl.obolibrary.org/obo/PR_Q2VLH6	93671
CD164 ; hCD164 ; ANA1141	sialomucin core protein 24 (human)	http://purl.obolibrary.org/obo/PR_Q04900	8763
Cd164 ; mCD164 ; ANA1250	sialomucin core protein 24 (mouse)	http://purl.obolibrary.org/obo/PR_Q9R0L9	53599
Cd164l2 ; mCD164L2 ; ANA1229	CD164 sialomucin-like 2 protein (mouse)	http://purl.obolibrary.org/obo/PR_Q9D6W7	69655
CD166 ; hALCAM ; ANA1154	CD166 antigen (human)	http://purl.obolibrary.org/obo/PR_Q13740	214
CD167 ; hDDR1 ; ANA1145	epithelial discoidin domain-containing receptor 1 (human)	http://purl.obolibrary.org/obo/PR_Q08345	780
CD168 ; hHMMR ; ANA966	hyaluronan mediated motility receptor (human)	http://purl.obolibrary.org/obo/PR_O75330	3161
CD169 ; hSIGLEC1 ; ANA1227	sialoadhesin (human)	http://purl.obolibrary.org/obo/PR_Q9BZZ2	6614

CD16b ; hFCGR3B ; ANA960	low affinity immunoglobulin gamma Fc region receptor III-B (human)	http://purl.obolibrary.org/obo/PR_O75015	2215
CD170 ; hSIGLEC5 ; ANA951	sialic acid-binding Ig-like lectin 5 (human)	http://purl.obolibrary.org/obo/PR_O15389	8778
CD171 ; hL1CAM ; ANA1092	neural cell adhesion molecule L1 (human)	http://purl.obolibrary.org/obo/PR_P32004	3897
CD172a ; hSIRPA ; ANA1130	tyrosine-protein phosphatase non-receptor type substrate 1 (human)	http://purl.obolibrary.org/obo/PR_P78324	140885
CD172b ; hSIRPB1 ; ANA935	signal-regulatory protein beta-1 (human)	http://purl.obolibrary.org/obo/PR_000026875	10326
CD172g ; hSIRPG ; ANA1247	signal-regulatory protein gamma (human)	http://purl.obolibrary.org/obo/PR_Q9P1W8	55423
CD174 ; hFUT3 ; ANA1061	galactoside 3(4)-L-fucosyltransferase (human)	http://purl.obolibrary.org/obo/PR_P21217	2525
CD177 ; hCD177 ; ANA1203	CD177 antigen (human)	http://purl.obolibrary.org/obo/PR_Q8N6Q3	57126
Cd177 ; mCd177 ; ANA1206	CD177 antigen (mouse)	http://purl.obolibrary.org/obo/PR_Q8R2S8	68891
CD179a ; hVPREB1 ; ANA1017	immunoglobulin iota chain (human)	http://purl.obolibrary.org/obo/PR_P12018	7441
CD179B ; hIGLL1 ; ANA1040	immunoglobulin lambda-like polypeptide 1 (human)	http://purl.obolibrary.org/obo/PR_P15814	3543

CD18 ; hITGB2 ; ANA985	integrin beta-2 (human)	http://purl.obolibrary.org/obo/PR_P05107	3689
CD180 ; hCD180 ; ANA1223	CD180 antigen (human)	http://purl.obolibrary.org/obo/PR_Q99467	4064
Cd180 ; mCD180 ; ANA1176	CD180 antigen (mouse)	http://purl.obolibrary.org/obo/PR_Q62192	17079
CD19 ; hCD19 ; ANA805	B-lymphocyte antigen CD19 (human)	http://purl.obolibrary.org/obo/PR_P15391	930
Cd19 ; mCD19 ; ANA1078	B-lymphocyte antigen CD19 (mouse)	http://purl.obolibrary.org/obo/PR_P25918	12478
CD1a ; hCD1A ; ANA988	T-cell surface glycoprotein CD1a (human)	http://purl.obolibrary.org/obo/PR_P06126	909
CD1b ; hCD1B ; ANA1084	T-cell surface glycoprotein CD1b (human)	http://purl.obolibrary.org/obo/PR_P29016	910
CD1d ; hCD1D ; ANA1039	antigen-presenting glycoprotein CD1d (human)	http://purl.obolibrary.org/obo/PR_P15813	912
Cd1d1 ; mCD1D ; ANA1011	antigen-presenting glycoprotein CD1d1 (mouse)	http://purl.obolibrary.org/obo/PR_P11609	12479
Cd1d2 ; mCd1d2 ; ANA1012	antigen-presenting glycoprotein CD1d2 (mouse)	http://purl.obolibrary.org/obo/PR_P11610	12480
CD1e ; hCD1E ; ANA1038	T-cell surface glycoprotein CD1e, membrane-associated (human)	http://purl.obolibrary.org/obo/PR_P15812	913

CD2 ; hCD2 ; ANA860	T-cell surface antigen CD2 (human)	https://www.ncbi.nlm.nih.gov/gene/914	914
Cd2 ; mCD2 ; ANA1000	T-cell surface antigen CD2 (mouse)	http://purl.obolibrary.org/obo/PR_P08920	12481
CD20 ; hMS4A1 ; ANA806	B-lymphocyte antigen CD20 (human)	http://purl.obolibrary.org/obo/PR_P11836	931
CD200 ; hCD200 ; ANA1111	OX-2 membrane glycoprotein (human)	http://purl.obolibrary.org/obo/PR_P41217	4345
Cd200 ; mCD200 ; ANA956	OX-2 membrane glycoprotein (mouse)	http://purl.obolibrary.org/obo/PR_O54901	-
Cd200r1 ; mCd200r1 ; ANA1232	cell surface glycoprotein CD200 receptor 1 (mouse)	http://purl.obolibrary.org/obo/PR_Q9ES57	57781
Cd200r2 ; mCD200R1L ; ANA1187	cell surface glycoprotein CD200 receptor 2 (mouse)	http://purl.obolibrary.org/obo/PR_Q6XJV6	271375
Cd200r3 ; mCd200r3 ; ANA1168	cell surface glycoprotein CD200 receptor 3 (mouse)	http://purl.obolibrary.org/obo/PR_Q5UKY4	74603
Cd200r4 ; mCd200r4 ; ANA1186	cell surface glycoprotein CD200 receptor 4 (mouse)	http://purl.obolibrary.org/obo/PR_Q6XJV4	239849
CD201 ; hPROCR ; ANA1259	endothelial protein C receptor (human)	http://purl.obolibrary.org/obo/PR_Q9UNN8	10544
CD202b ; hTEK ; ANA1139	angiopoietin-1 receptor (human)	http://purl.obolibrary.org/obo/PR_Q02763	7010

CD203c ; hENPP3 ; ANA947	ectonucleotide pyrophosphatase/phosphodiesterase family member 3 (human)	http://purl.obolibrary.org/obo/PR_O14638	5169
CD204 ; hMSR1 ; ANA1064	macrophage scavenger receptor types I and II (human)	http://purl.obolibrary.org/obo/PR_P21757	4481
CD205 ; hLY75 ; ANA937	lymphocyte antigen 75 (human)	http://purl.obolibrary.org/obo/PR_000034294	4065
CD206 ; hMRC1 ; ANA1072	macrophage mannose receptor 1 (human)	http://purl.obolibrary.org/obo/PR_P22897	4360
CD207 ; hCD207 ; ANA1255	C-type lectin domain family 4 member K (human)	http://purl.obolibrary.org/obo/PR_Q9UJ71	50489
Cd207 ; mCD207 ; ANA1208	C-type lectin domain family 4 member K (mouse)	http://purl.obolibrary.org/obo/PR_Q8VBX4	246278
CD208 ; hLAMP3 ; ANA1261	lysosome-associated membrane glycoprotein 3 (human)	http://purl.obolibrary.org/obo/PR_Q9UQV4	27074
Cd209a ; mCd209a ; ANA1216	CD209 antigen-like protein A (mouse)	http://purl.obolibrary.org/obo/PR_Q91ZX1	170786
Cd209b ; mCd209b ; ANA1194	CD209 antigen-like protein B (mouse)	http://purl.obolibrary.org/obo/PR_Q8CJ91	69165
Cd209c ; mCd209c ; ANA1215	CD209 antigen-like protein C (mouse)	http://purl.obolibrary.org/obo/PR_Q91ZW9	170776
Cd209d ; mCd209d ; ANA1214	CD209 antigen-like protein D (mouse)	http://purl.obolibrary.org/obo/PR_Q91ZW8	170779

Cd209e ; mCd209e ; ANA1213	CD209 antigen-like protein E (mouse)	http://purl.obolibrary.org/obo/PR_Q91ZW7	170780
CD21 ; hCR2 ; ANA919	complement receptor type 2 (human)	http://purl.obolibrary.org/obo/PR_P20023	-
CD213A1 ; hIL13RA1 ; ANA128	interleukin-13 receptor subunit alpha-1 (human)	http://www.ncbi.nlm.nih.gov/gene/3597	3597
CD213A2 ; hIL13RA2 ; ANA129	interleukin-13 receptor subunit alpha-2 (human)	http://www.ncbi.nlm.nih.gov/gene/3598	3598
Cd22 ; mCD22 ; ANA1097	B-cell receptor CD22 (mouse)	http://purl.obolibrary.org/obo/PR_P35329	12483
CD220 ; hINSR ; ANA989	insulin receptor (human)	http://purl.obolibrary.org/obo/PR_P06213	3643
CD221 ; hIGF1R ; ANA993	insulin-like growth factor 1 receptor (human)	http://purl.obolibrary.org/obo/PR_P08069	3480
CD222 ; hIGF2R ; ANA1013	cation-independent mannose-6-phosphate receptor (human)	http://purl.obolibrary.org/obo/PR_P11717	3482
CD223 ; hLAG3 ; ANA1054	lymphocyte activation gene 3 protein (human)	http://purl.obolibrary.org/obo/PR_P18627	3902
CD224 ; hGGT1 ; ANA1058	glutathione hydrolase 1 proenzyme (human)	http://purl.obolibrary.org/obo/PR_P19440	2678
CD225 ; hIFITM1 ; ANA1021	interferon-induced transmembrane protein 1 (human)	http://purl.obolibrary.org/obo/PR_P13164	8519

CD226 ; hCD226 ; ANA1160	CD226 antigen (human)	http://purl.obolibrary.org/obo/PR_Q15762	10666
Cd226 ; mCD226 ; ANA1198	CD226 antigen (mouse)	http://purl.obolibrary.org/obo/PR_Q8K4F0	225825
CD227 ; hMUC1 ; ANA1041	mucin-1 (human)	http://purl.obolibrary.org/obo/PR_P15941	4582
CD228 ; hMELTF ; ANA998	melanotransferrin (human)	http://purl.obolibrary.org/obo/PR_P08582	4241
CD229 ; hLY9 ; ANA1235	T-lymphocyte surface antigen Ly-9 (human)	http://purl.obolibrary.org/obo/PR_Q9HBG7	4063
CD23 ; hFCER2 ; ANA922	low affinity immunoglobulin epsilon Fc receptor (human)	http://purl.obolibrary.org/obo/PR_P06734	-
CD230 ; hPRNP ; ANA936	major prion protein (human)	http://purl.obolibrary.org/obo/PR_000030020	5621
CD231 ; hTSPAN7 ; ANA1113	tetraspanin-7 (human)	http://purl.obolibrary.org/obo/PR_P41732	7102
CD232 ; hPLXNC1 ; ANA958	plexin-C1 (human)	http://purl.obolibrary.org/obo/PR_O60486	10154
CD233 ; hSLC4A1 ; ANA977	band 3 anion transport protein (human)	http://purl.obolibrary.org/obo/PR_P02730	6521
CD234 ; hACKR1 ; ANA1161	atypical chemokine receptor 1 (human)	http://purl.obolibrary.org/obo/PR_Q16570	2532

CD235a ; hGYPA ; ANA976	glycophorin-A (human)	http://purl.obolibrary.org/obo/PR_P02724	2993
CD235b ; hGYPB ; ANA987	glycophorin-B (human)	http://purl.obolibrary.org/obo/PR_P06028	2994
CD236R ; hGYPC ; ANA983	glycophorin-C (human)	http://purl.obolibrary.org/obo/PR_P04921	2995
CD238 ; hKEL ; ANA1073	kell blood group glycoprotein (human)	http://purl.obolibrary.org/obo/PR_P23276	3792
CD239 ; hBCAM ; ANA1122	basal cell adhesion molecule (human)	http://purl.obolibrary.org/obo/PR_P50895	4059
CD24 ; hCD24 ; ANA807	signal transducer CD24 (human)	http://purl.obolibrary.org/obo/PR_P25063	100133941
CD240CE ; hRHCE ; ANA1053	blood group Rh(CE) polypeptide (human)	http://purl.obolibrary.org/obo/PR_P18577	6006
CD240D ; hRHD ; ANA1138	blood group Rh(D) polypeptide (human)	http://purl.obolibrary.org/obo/PR_Q02161	6007
CD241 ; hRHAG ; ANA1137	ammonium transporter Rh type A (human)	http://purl.obolibrary.org/obo/PR_Q02094	6005
CD242 ; hICAM4 ; ANA1155	intercellular adhesion molecule 4 (human)	http://purl.obolibrary.org/obo/PR_Q14773	3386
CD243 ; hABCB1 ; ANA996	multidrug resistance protein 1 (human)	http://purl.obolibrary.org/obo/PR_P08183	5243

CD244 ; hCD244 ; ANA1226	natural killer cell receptor 2B4 (human)	http://purl.obolibrary.org/obo/PR_Q9BZW8	51744
Cd244a ; mCD244 ; ANA1143	natural killer cell receptor 2B4 (mouse)	http://purl.obolibrary.org/obo/PR_Q07763	18106
CD246 ; hALK ; ANA1258	ALK tyrosine kinase receptor (human)	http://purl.obolibrary.org/obo/PR_Q9UM73	238
CD247 ; hCD247 ; ANA1060	T-cell surface glycoprotein CD3 (human)	http://purl.obolibrary.org/obo/PR_P20963	919
Cd247 ; mCD247 ; ANA1076	T-cell surface glycoprotein CD3 isoforms eta/zeta (mouse)	http://purl.obolibrary.org/obo/PR_P24161	12503
CD248 ; hCD248 ; ANA1236	endosialin (human)	http://purl.obolibrary.org/obo/PR_Q9HCU0	57124
Cd248 ; mCD248 ; ANA1212	endosialin (mouse)	http://purl.obolibrary.org/obo/PR_Q91V98	70445
CD249 ; hENPEP ; ANA1142	glutamyl aminopeptidase (human)	http://purl.obolibrary.org/obo/PR_Q07075	2028
Cd24a ; mCD24 ; ANA1077	signal transducer CD24 (mouse)	http://purl.obolibrary.org/obo/PR_P24807	12484
CD26 ; hDPP4 ; ANA1081	dipeptidyl peptidase 4 (human)	http://purl.obolibrary.org/obo/PR_P27487	1803
CD266 ; hTNFRSF12A ; ANA1240	tumor necrosis factor receptor superfamily member 12A (human)	http://purl.obolibrary.org/obo/PR_Q9NP84	51330

CD268 ; hTNFRSF13C ; ANA1222	tumor necrosis factor receptor superfamily member 13C (human)	http://purl.obolibrary.org/obo/PR_Q96RJ3	115650
CD27 ; hCD27 ; ANA40	CD27 antigen (human)	http://www.ncbi.nlm.nih.gov/gene/939	939
Cd27 ; mCD27 ; ANA503	CD27 antigen (mouse)	http://www.ncbi.nlm.nih.gov/gene/21940	21940
CD271 ; hNGFR ; ANA994	tumor necrosis factor receptor superfamily member 16 (human)	http://purl.obolibrary.org/obo/PR_P08138	4804
CD272 ; hBTLA ; ANA1191	B- and T-lymphocyte attenuator (human)	http://purl.obolibrary.org/obo/PR_Q7Z6A9	151888
CD274 ; hCD274 ; ANA1246	programmed cell death 1 ligand 1 (human)	http://purl.obolibrary.org/obo/PR_Q9NZQ7	29126
Cd274 ; mCD274 ; ANA1231	programmed cell death 1 ligand 1 (mouse)	http://purl.obolibrary.org/obo/PR_Q9EP73	60533
CD275 ; hICOSLG ; ANA964	ICOS ligand (human)	http://purl.obolibrary.org/obo/PR_O75144	23308
CD276 ; hCD276 ; ANA1169	CD276 antigen (human)	http://purl.obolibrary.org/obo/PR_Q5ZPR3	80381
Cd276 ; mCD276 ; ANA1210	CD276 antigen (mouse)	http://purl.obolibrary.org/obo/PR_Q8VE98	102657
CD277 ; hBTN3A1 ; ANA946	butyrophilin subfamily 3 member A1 (human)	http://purl.obolibrary.org/obo/PR_O00481	11119

CD278 ; hICOS ; ANA898	inducible T-cell costimulator (human)	https://www.ncbi.nlm.nih.gov/gene/29851	29851
CD28 ; hCD28 ; ANA863	T-cell-specific surface glycoprotein CD28 (human)	https://www.ncbi.nlm.nih.gov/gene/940	940
Cd28 ; mCD28 ; ANA1086	T-cell-specific surface glycoprotein CD28 (mouse)	http://purl.obolibrary.org/obo/PR_P31041	12487
CD280 ; hMRC2 ; ANA1251	C-type mannose receptor 2 (human)	http://purl.obolibrary.org/obo/PR_Q9UBG0	9902
CD281 ; hTLR1 ; ANA1159	Toll-like receptor 1 (human)	http://purl.obolibrary.org/obo/PR_Q15399	7096
CD282 ; hTLR2 ; ANA959	Toll-like receptor 2 (human)	http://purl.obolibrary.org/obo/PR_O60603	7097
CD283 ; hTLR3 ; ANA952	Toll-like receptor 3 (human)	http://purl.obolibrary.org/obo/PR_O15455	7098
CD284 ; hTLR4 ; ANA944	Toll-like receptor 4 (human)	http://purl.obolibrary.org/obo/PR_O00206	7099
CD288 ; hTLR8 ; ANA1245	Toll-like receptor 8 (human)	http://purl.obolibrary.org/obo/PR_Q9NR97	51311
CD289 ; hTLR9 ; ANA1244	Toll-like receptor 9 (human)	http://purl.obolibrary.org/obo/PR_Q9NR96	54106
CD29 ; hITGB1 ; ANA986	integrin beta-1 (human)	http://purl.obolibrary.org/obo/PR_P05556	3688

CD290 ; hTLR10 ; ANA1225	Toll-like receptor 10 (human)	http://purl.obolibrary.org/obo/PR_Q9BXR5	81793
CD292 ; hBMPR1A ; ANA1101	bone morphogenetic protein receptor type-1A (human)	http://purl.obolibrary.org/obo/PR_P36894	657
CD294 ; hPTGDR2 ; ANA1264	prostaglandin D2 receptor 2 (human)	http://purl.obolibrary.org/obo/PR_Q9Y5Y4	11251
CD295 ; hLEPR ; ANA899	leptin receptor (human)	https://www.ncbi.nlm.nih.gov/gene/3953	3953
CD296 ; hART1 ; ANA1123	GPI-linked NAD(P)(+)--arginine ADP-ribosyltransferase 1 (human)	http://purl.obolibrary.org/obo/PR_P52961	417
CD297 ; hART4 ; ANA1220	ecto-ADP-ribosyltransferase 4 (human)	http://purl.obolibrary.org/obo/PR_Q93070	420
CD298 ; hATP1B3 ; ANA1124	sodium/potassium-transporting ATPase subunit beta-3 (human)	http://purl.obolibrary.org/obo/PR_P54709	483
CD299 ; hCLEC4M ; ANA1233	C-type lectin domain family 4 member M (human)	http://purl.obolibrary.org/obo/PR_Q9H2X3	10332
Cd2ap ; mCD2AP ; ANA1239	CD2-associated protein (mouse)	http://purl.obolibrary.org/obo/PR_Q9JLQ0	12488
Cd2bp2 ; mCD2BP2 ; ANA1228	CD2 antigen cytoplasmic tail-binding protein 2 (mouse)	http://purl.obolibrary.org/obo/PR_Q9CWK3	70233
CD3 ; hCD3E ; ANA809	T-cell surface glycoprotein CD3 epsilon chain (human)	http://purl.obolibrary.org/obo/PR_P07766	916

CD300a ; hCD300A ; ANA1252	CMRF35-like molecule 8 (human)	http://purl.obolibrary.org/obo/PR_Q9UGN4	11314
Cd300a ; mCD300A ; ANA1183	CMRF35-like molecule 8 (mouse)	http://purl.obolibrary.org/obo/PR_Q6SJQ0	217303
CD300c ; hCD300C ; ANA1146	CMRF35-like molecule 6 (human)	http://purl.obolibrary.org/obo/PR_Q08708	10871
Cd300c ; mCD300C ; ANA940	CMRF35-like molecule 6 (mouse)	http://purl.obolibrary.org/obo/PR_A2A7V7	387565
Cd300c2 ; mClm ; ANA1190	CMRF35-like molecule (mouse)	http://purl.obolibrary.org/obo/PR_Q7TSN2	140497
CD300e ; hCD300E ; ANA1167	CMRF35-like molecule 2 (human)	http://purl.obolibrary.org/obo/PR_Q496F6	342510
Cd300e ; mCD300E ; ANA1197	CMRF35-like molecule 2 (mouse)	http://purl.obolibrary.org/obo/PR_Q8K249	217306
Cd300lb ; mCD300LB ; ANA1166	CMRF35-like molecule 7 (mouse)	http://purl.obolibrary.org/obo/PR_Q3U497	217304
Cd300ld ; mClm5 ; ANA1209	CMRF35-like molecule 5 (mouse)	http://purl.obolibrary.org/obo/PR_Q8VCH2	217305
Cd300ld3 ; mClm3 ; ANA1184	CMRF35-like molecule 3 (mouse)	http://purl.obolibrary.org/obo/PR_Q6SJQ5	382551
Cd300lf ; mCD300LF ; ANA1185	CMRF35-like molecule 1 (mouse)	http://purl.obolibrary.org/obo/PR_Q6SJQ7	246746

Cd300lg ; mCd300lg ; ANA1163	CMRF35-like molecule 9 (mouse)	http://purl.obolibrary.org/obo/PR_Q1ERP8	52685
CD301 ; hCLEC10A ; ANA1195	C-type lectin domain family 10 member A (human)	http://purl.obolibrary.org/obo/PR_Q8IUN9	10462
CD302 ; hCD302 ; ANA1196	CD302 antigen (human)	http://purl.obolibrary.org/obo/PR_Q8IX05	9936
Cd302 ; mCD302 ; ANA1230	CD302 antigen (mouse)	http://purl.obolibrary.org/obo/PR_Q9DCG2	66205
CD304 ; hNRP1 ; ANA949	neuropilin-1 (human)	http://purl.obolibrary.org/obo/PR_O14786	8829
CD305 ; hLAIR1 ; ANA1180	leukocyte-associated immunoglobulin-like receptor 1 (human)	http://purl.obolibrary.org/obo/PR_Q6GTX8	3903
CD306 ; hLAIR2 ; ANA1181	leukocyte-associated immunoglobulin-like receptor 2 (human)	http://purl.obolibrary.org/obo/PR_Q6ISS4	3904
CD309 ; hKDR ; ANA1100	vascular endothelial growth factor receptor 2 (human)	http://purl.obolibrary.org/obo/PR_P35968	3791
CD31 ; hPECAM1 ; ANA1044	platelet endothelial cell adhesion molecule (human)	http://purl.obolibrary.org/obo/PR_P16284	5175
CD312 ; hADGRE2 ; ANA1253	adhesion G protein-coupled receptor E2 (human)	http://purl.obolibrary.org/obo/PR_Q9UHX3	30817
CD314 ; hKLRK1 ; ANA886	NKG2-D type II integral membrane protein (human)	https://www.ncbi.nlm.nih.gov/gene/22914	22914

CD315 ; hPTGFRN ; ANA1248	prostaglandin F2 receptor negative regulator (human)	http://purl.obolibrary.org/obo/PR_Q9P2B2	5738
CD316 ; hIGSF8 ; ANA1221	immunoglobulin superfamily member 8 (human)	http://purl.obolibrary.org/obo/PR_Q969P0	93185
CD317 ; hBST2 ; ANA1150	bone marrow stromal antigen 2 (human)	http://purl.obolibrary.org/obo/PR_Q10589	684
CD318 ; hCDCP1 ; ANA1234	CUB domain-containing protein 1 (human)	http://purl.obolibrary.org/obo/PR_Q9H5V8	64866
CD319 ; hSLAMF7 ; ANA1242	SLAM family member 7 (human)	http://purl.obolibrary.org/obo/PR_Q9NQ25	57823
CD320 ; hCD320 ; ANA1241	CD320 antigen (human)	http://purl.obolibrary.org/obo/PR_Q9NPF0	51293
Cd320 ; mCD320 ; ANA1266	CD320 antigen (mouse)	http://purl.obolibrary.org/obo/PR_Q9Z1P5	54219
CD321 ; hF11R ; ANA1265	junctional adhesion molecule A (human)	http://purl.obolibrary.org/obo/PR_Q9Y624	50848
CD322 ; hJAM2 ; ANA1126	junctional adhesion molecule B (human)	http://purl.obolibrary.org/obo/PR_P57087	58494
CD324 ; hCDH1 ; ANA1020	cadherin-1 (human)	http://purl.obolibrary.org/obo/PR_P12830	999
CD326 ; hEPCAM ; ANA1045	epithelial cell adhesion molecule (human)	http://purl.obolibrary.org/obo/PR_P16422	4072

CD32A ; hFCGR2A ; ANA1018	low affinity immunoglobulin gamma Fc region receptor II-a (human)	http://purl.obolibrary.org/obo/PR_P12318	2212
CD32B ; hFCGR2B ; ANA1088	low affinity immunoglobulin gamma Fc region receptor II-b (human)	http://purl.obolibrary.org/obo/PR_P31994	2213
CD32C ; hFCGR2C ; ANA1089	low affinity immunoglobulin gamma Fc region receptor II-c (human)	http://purl.obolibrary.org/obo/PR_P31995	9103
Cd33 ; mCD33 ; ANA1177	myeloid cell surface antigen CD33 (mouse)	http://purl.obolibrary.org/obo/PR_Q63994	12489
CD331 ; hFGFR1 ; ANA1009	fibroblast growth factor receptor 1 (human)	http://purl.obolibrary.org/obo/PR_P11362	2260
CD332 ; hFGFR2 ; ANA1065	fibroblast growth factor receptor 2 (human)	http://purl.obolibrary.org/obo/PR_P21802	2263
CD333 ; hFGFR3 ; ANA1070	fibroblast growth factor receptor 3 (human)	http://purl.obolibrary.org/obo/PR_P22607	2261
CD334 ; hFGFR4 ; ANA1069	fibroblast growth factor receptor 4 (human)	http://purl.obolibrary.org/obo/PR_P22455	2264
CD335 ; hNCR1 ; ANA967	natural cytotoxicity triggering receptor 1 (human)	http://purl.obolibrary.org/obo/PR_O76036	9437
CD337 ; hNCR3 ; ANA950	natural cytotoxicity triggering receptor 3 (human)	http://purl.obolibrary.org/obo/PR_O14931	259197
CD339 ; hJAG1 ; ANA1132	protein jagged-1 (human)	http://purl.obolibrary.org/obo/PR_P78504	182

CD34 ; hCD34 ; ANA1083	hematopoietic progenitor cell antigen CD34 (human)	http://purl.obolibrary.org/obo/PR_P28906	947
Cd34 ; mCD34 ; ANA1178	hematopoietic progenitor cell antigen CD34 (mouse)	http://purl.obolibrary.org/obo/PR_Q64314	12490
CD340 ; hERBB2 ; ANA982	receptor tyrosine-protein kinase erbB-2 (human)	http://purl.obolibrary.org/obo/PR_P04626	2064
CD344 ; hFZD4 ; ANA1256	frizzled-4 (human)	http://purl.obolibrary.org/obo/PR_Q9ULV1	8322
CD349 ; hFZD9 ; ANA943	frizzled-9 (human)	http://purl.obolibrary.org/obo/PR_O00144	8326
CD35 ; hCR1 ; ANA1051	complement receptor type 1 (human)	http://purl.obolibrary.org/obo/PR_P17927	1378
CD350 ; hFZD10 ; ANA1257	frizzled-10 (human)	http://purl.obolibrary.org/obo/PR_Q9ULW2	11211
CD36 ; hCD36 ; ANA1047	platelet glycoprotein 4 (human)	http://purl.obolibrary.org/obo/PR_P16671	948
Cd36 ; mCD36 ; ANA1148	platelet glycoprotein 4 (mouse)	http://purl.obolibrary.org/obo/PR_Q08857	12491
CD37 ; hCD37 ; ANA1008	leukocyte antigen CD37 (human)	http://purl.obolibrary.org/obo/PR_P11049	951
Cd37 ; mCD37 ; ANA1172	leukocyte antigen CD37 (mouse)	http://purl.obolibrary.org/obo/PR_Q61470	12493

CD38 ; hCD38 ; ANA808	ADP-ribosyl cyclase/cyclic ADP-ribose hydrolase 1 (human)	http://purl.obolibrary.org/obo/PR_P28907	952
Cd38 ; mCD38 ; ANA1125	ADP-ribosyl cyclase/cyclic ADP-ribose hydrolase 1 (mouse)	http://purl.obolibrary.org/obo/PR_P56528	12494
CD39 ; hENTPD1 ; ANA921	ectonucleoside triphosphate diphosphohydrolase 1 (human)	http://purl.obolibrary.org/obo/PR_P49961	-
CD3d ; hCD3D ; ANA979	T-cell surface glycoprotein CD3 delta chain (human)	http://purl.obolibrary.org/obo/PR_P04234	915
Cd3d ; mCD3D ; ANA980	T-cell surface glycoprotein CD3 delta chain (mouse)	http://purl.obolibrary.org/obo/PR_P04235	12500
Cd3e ; mCD3E ; ANA1071	T-cell surface glycoprotein CD3 epsilon chain (mouse)	http://purl.obolibrary.org/obo/PR_P22646	12501
Cd3eap ; mCD3EAP ; ANA1189	DNA-directed RNA polymerase I subunit RPA34 (mouse)	http://purl.obolibrary.org/obo/PR_Q76KJ5	70333
CD3g ; hCD3G ; ANA1003	T-cell surface glycoprotein CD3 gamma chain (human)	http://purl.obolibrary.org/obo/PR_P09693	917
Cd3g ; mCD3G ; ANA1016	T-cell surface glycoprotein CD3 gamma chain (mouse)	http://purl.obolibrary.org/obo/PR_P11942	12502
CD4 ; hCD4 ; ANA41	T-cell surface glycoprotein CD4 (human)	http://www.ncbi.nlm.nih.gov/gene/920	920
Cd4 ; mCD4 ; ANA504	T-cell surface glycoprotein CD4 (mouse)	http://www.ncbi.nlm.nih.gov/gene/12504	12504

CD40 ; hCD40 ; ANA42	tumor necrosis factor receptor superfamily member 5 (human)	http://www.ncbi.nlm.nih.gov/gene/958	958
Cd40 ; mCD40 ; ANA505	tumor necrosis factor receptor superfamily member 5 (mouse)	http://www.ncbi.nlm.nih.gov/gene/21939	21939
Cd40lg ; mCD40LG ; ANA506	CD40 ligand (mouse)	http://www.ncbi.nlm.nih.gov/gene/21947	21947
CD41 ; hITGA2B ; ANA997	integrin alpha-IIb (human)	http://purl.obolibrary.org/obo/PR_P08514	3674
CD42a ; hGP9 ; ANA1032	platelet glycoprotein IX (human)	http://purl.obolibrary.org/obo/PR_P14770	2815
CD42b ; hGP1BA ; ANA992	platelet glycoprotein Ib alpha chain (human)	http://purl.obolibrary.org/obo/PR_P07359	2811
CD42c ; hGP1BB ; ANA1022	platelet glycoprotein Ib beta chain (human)	http://purl.obolibrary.org/obo/PR_P13224	2812
CD42d ; hGP5 ; ANA1103	platelet glycoprotein V (human)	http://purl.obolibrary.org/obo/PR_P40197	2814
CD43 ; hSPN ; ANA893	leukosialin (human)	https://www.ncbi.nlm.nih.gov/gene/6693	6693
CD44 ; hCD44 ; ANA914	CD44 antigen (human)	http://purl.obolibrary.org/obo/PR_P16070	-
Cd44 ; mCD44 ; ANA1035	CD44 antigen (mouse)	http://purl.obolibrary.org/obo/PR_P15379	12505

CD45RA ; hPTPRC/iso:h6 ; ANA816	receptor-type tyrosine-protein phosphatase C isoform h6 (human)	http://purl.obolibrary.org/obo/PR_P08575-8	5788
CD45RO ; PTPRC/iso:CD45RO ; ANA822	receptor-type tyrosine-protein phosphatase C isoform CD45RO	http://purl.obolibrary.org/obo/PR_000001017	5788
CD46 ; hCD46 ; ANA1036	membrane cofactor protein (human)	http://purl.obolibrary.org/obo/PR_P15529	4179
Cd46 ; mCD46 ; ANA968	membrane cofactor protein (mouse)	http://purl.obolibrary.org/obo/PR_O88174	17221
CD47 ; hCD47 ; ANA1147	leukocyte surface antigen CD47 (human)	http://purl.obolibrary.org/obo/PR_Q08722	961
Cd47 ; mCD47 ; ANA1175	leukocyte surface antigen CD47 (mouse)	http://purl.obolibrary.org/obo/PR_Q61735	16423
CD48 ; hCD48 ; ANA1001	CD48 antigen (human)	http://purl.obolibrary.org/obo/PR_P09326	962
Cd48 ; mCD48 ; ANA1052	CD48 antigen (mouse)	http://purl.obolibrary.org/obo/PR_P18181	12506
CD49 ; hITGA6 ; ANA876	integrin alpha-6 (human)	https://www.ncbi.nlm.nih.gov/gene/3655	3655
CD49a ; hITGA1 ; ANA927	integrin alpha-1 (human)	http://purl.obolibrary.org/obo/PR_P56199	-
CD49b ; hITGA2 ; ANA1048	integrin alpha-2 (human)	http://purl.obolibrary.org/obo/PR_P17301	3673

CD49c ; hITGA3 ; ANA1079	integrin alpha-3 (human)	http://purl.obolibrary.org/obo/PR_P26006	3675
CD49d ; hITGA4 ; ANA1026	integrin alpha-4 (human)	http://purl.obolibrary.org/obo/PR_P13612	3676
CD49e ; hITGA5 ; ANA999	integrin alpha-5 (human)	http://purl.obolibrary.org/obo/PR_P08648	3678
CD5 ; hCD5 ; ANA915	T-cell surface glycoprotein CD5 (human)	http://purl.obolibrary.org/obo/PR_P06127	-
Cd5 ; mCD5 ; ANA1023	T-cell surface glycoprotein CD5 (mouse)	http://purl.obolibrary.org/obo/PR_P13379	12507
CD50 ; hICAM3 ; ANA1094	intercellular adhesion molecule 3 (human)	http://purl.obolibrary.org/obo/PR_P32942	3385
CD51 ; hITGAV ; ANA991	integrin alpha-V (human)	http://purl.obolibrary.org/obo/PR_P06756	3685
CD52 ; hCD52 ; ANA1087	CAMPATH-1 antigen (human)	http://purl.obolibrary.org/obo/PR_P31358	1043
Cd52 ; mCD52 ; ANA1179	CAMPATH-1 antigen (mouse)	http://purl.obolibrary.org/obo/PR_Q64389	23833
CD53 ; hCD53 ; ANA1057	leukocyte surface antigen CD53 (human)	http://purl.obolibrary.org/obo/PR_P19397	963
Cd53 ; mCD53 ; ANA1171	leukocyte surface antigen CD53 (mouse)	http://purl.obolibrary.org/obo/PR_Q61451	12508

CD55 ; hCD55 ; ANA995	complement decay-accelerating factor (human)	http://purl.obolibrary.org/obo/PR_P08174	1604
Cd55 ; mCd55 ; ANA1173	complement decay-accelerating factor, GPI-anchored (mouse)	http://purl.obolibrary.org/obo/PR_Q61475	13136
Cd55b ; mCd55b ; ANA1174	complement decay-accelerating factor transmembrane isoform (mouse)	http://purl.obolibrary.org/obo/PR_Q61476	13137
CD56 ; hNCAM1 ; ANA815	neural cell adhesion molecule 1 (human)	http://purl.obolibrary.org/obo/PR_P13591	4684
CD57 ; hB3GAT1 ; ANA823	galactosylgalactosylxylosylprotein 3-beta-glucuronosyltransferase 1 (human)	https://www.ncbi.nlm.nih.gov/gene/27087	27087
CD58 ; hCD58 ; ANA1056	lymphocyte function-associated antigen 3 (human)	http://purl.obolibrary.org/obo/PR_P19256	965
CD59 ; hCD59 ; ANA1030	CD59 glycoprotein (human)	http://purl.obolibrary.org/obo/PR_P13987	966
Cd59a ; mCd59a ; ANA957	CD59A glycoprotein (mouse)	http://purl.obolibrary.org/obo/PR_O55186	12509
Cd59b ; mCd59b ; ANA1127	CD59B glycoprotein (mouse)	http://purl.obolibrary.org/obo/PR_P58019	333883
Cd5l ; mCD5L ; ANA1249	CD5 antigen-like (mouse)	http://purl.obolibrary.org/obo/PR_Q9QWK4	11801
CD6 ; hCD6 ; ANA1085	T-cell differentiation antigen CD6 (human)	http://purl.obolibrary.org/obo/PR_P30203	923

Cd6 ; mCD6 ; ANA1170	T-cell differentiation antigen CD6 (mouse)	http://purl.obolibrary.org/obo/PR_Q61003	12511
CD61 ; hITGB3 ; ANA984	integrin beta-3 (human)	http://purl.obolibrary.org/obo/PR_P05106	3690
CD62E ; hSELE ; ANA1046	E-selectin (human)	http://purl.obolibrary.org/obo/PR_P16581	6401
CD62L ; hSELL ; ANA712	L-selectin (human)	http://www.ncbi.nlm.nih.gov/gene/6401	6401
CD62P ; hSELP ; ANA1042	P-selectin (human)	http://purl.obolibrary.org/obo/PR_P16109	6403
CD63 ; hCD63 ; ANA902	CD63 antigen (human)	https://www.ncbi.nlm.nih.gov/gene/967	967
Cd63 ; mCD63 ; ANA1112	CD63 antigen (mouse)	http://purl.obolibrary.org/obo/PR_P41731	12512
CD64 ; hFCGR1A ; ANA873	high affinity immunoglobulin gamma Fc receptor I (human)	https://www.ncbi.nlm.nih.gov/gene/2209	2209
CD66a ; hCEACAM1 ; ANA1027	carcinoembryonic antigen-related cell adhesion molecule 1 (human)	http://purl.obolibrary.org/obo/PR_P13688	634
CD66b ; hCEACAM8 ; ANA1091	carcinoembryonic antigen-related cell adhesion molecule 8 (human)	http://purl.obolibrary.org/obo/PR_P31997	1088
CD66c ; hCEACAM6 ; ANA1105	carcinoembryonic antigen-related cell adhesion molecule 6 (human)	http://purl.obolibrary.org/obo/PR_P40199	4680

CD66d ; hCEACAM3 ; ANA1104	carcinoembryonic antigen-related cell adhesion molecule 3 (human)	http://purl.obolibrary.org/obo/PR_P40198	1084
CD66e ; hCEACAM5 ; ANA990	carcinoembryonic antigen-related cell adhesion molecule 5 (human)	http://purl.obolibrary.org/obo/PR_P06731	1048
CD66f ; hPSG1 ; ANA1010	pregnancy-specific beta-1-glycoprotein 1 (human)	http://purl.obolibrary.org/obo/PR_P11464	5669
CD68 ; hCD68 ; ANA1096	macrosialin (human)	http://purl.obolibrary.org/obo/PR_P34810	968
Cd68 ; mCD68 ; ANA1090	macrosialin (mouse)	http://purl.obolibrary.org/obo/PR_P31996	12514
CD69 ; hCD69 ; ANA865	early activation antigen CD69 (human)	https://www.ncbi.nlm.nih.gov/gene/969	969
Cd69 ; mCD69 ; ANA1102	early activation antigen CD69 (mouse)	http://purl.obolibrary.org/obo/PR_P37217	12515
CD7 ; hCD7 ; ANA1002	T-cell antigen CD7 (human)	http://purl.obolibrary.org/obo/PR_P09564	924
Cd7 ; mCD7 ; ANA1121	T-cell antigen CD7 (mouse)	http://purl.obolibrary.org/obo/PR_P50283	12516
CD70 ; hCD70 ; ANA44	CD70 antigen (human)	http://www.ncbi.nlm.nih.gov/gene/970	970
Cd70 ; mCD70 ; ANA507	CD70 antigen (mouse)	http://www.ncbi.nlm.nih.gov/gene/21948	21948

CD71a ; hTFRC ; ANA932	transferrin receptor protein 1 (human)	http://purl.obolibrary.org/obo/PR_P02786	-
CD72 ; hCD72 ; ANA1066	B-cell differentiation antigen CD72 (human)	http://purl.obolibrary.org/obo/PR_P21854	971
Cd72 ; mCD72 ; ANA1067	B-cell differentiation antigen CD72 (mouse)	http://purl.obolibrary.org/obo/PR_P21855	12517
CD73 ; hNT5E ; ANA1062	5'-nucleotidase (human)	http://purl.obolibrary.org/obo/PR_P21589	4907
CD74 ; hCD74 ; ANA978	HLA class II histocompatibility antigen gamma chain (human)	http://purl.obolibrary.org/obo/PR_P04233	972
Cd74 ; mCD74 ; ANA981	H-2 class II histocompatibility antigen gamma chain (mouse)	http://purl.obolibrary.org/obo/PR_P04441	16149
CD79a ; hCD79A ; ANA1015	B-cell antigen receptor complex-associated protein alpha chain (human)	http://purl.obolibrary.org/obo/PR_P11912	973
Cd79a ; mCD79A ; ANA1014	B-cell antigen receptor complex-associated protein alpha chain (mouse)	http://purl.obolibrary.org/obo/PR_P11911	12518
CD79b ; hCD79B ; ANA1109	B-cell antigen receptor complex-associated protein beta chain (human)	http://purl.obolibrary.org/obo/PR_P40259	974
Cd79b ; mCD79B ; ANA1037	B-cell antigen receptor complex-associated protein beta chain (mouse)	http://purl.obolibrary.org/obo/PR_P15530	15985
CD8 ; hCD8A ; ANA810	T-cell surface glycoprotein CD8 alpha chain (human)	http://purl.obolibrary.org/obo/PR_P01732	925

Cd80 ; mCD80 ; ANA1135	T-lymphocyte activation antigen CD80 (mouse)	http://purl.obolibrary.org/obo/PR_Q00609	12519
CD81 ; hCD81 ; ANA1129	CD81 antigen (human)	http://purl.obolibrary.org/obo/PR_P60033	975
Cd81 ; mCD81 ; ANA1099	CD81 antigen (mouse)	http://purl.obolibrary.org/obo/PR_P35762	12520
CD82 ; hCD82 ; ANA1082	CD82 antigen (human)	http://purl.obolibrary.org/obo/PR_P27701	3732
Cd82 ; mCD82 ; ANA1107	CD82 antigen (mouse)	http://purl.obolibrary.org/obo/PR_P40237	12521
CD83 ; hCD83 ; ANA916	CD83 antigen (human)	http://purl.obolibrary.org/obo/PR_Q01151	-
Cd83 ; mCD83 ; ANA969	CD83 antigen (mouse)	http://purl.obolibrary.org/obo/PR_O88324	12522
CD84 ; hCD84 ; ANA1254	SLAM family member 5 (human)	http://purl.obolibrary.org/obo/PR_Q9UIB8	8832
Cd84 ; mCD84 ; ANA1162	SLAM family member 5 (mouse)	http://purl.obolibrary.org/obo/PR_Q18PI6	12523
CD85a ; hLILRB3 ; ANA962	leukocyte immunoglobulin-like receptor subfamily B member 3 (human)	http://purl.obolibrary.org/obo/PR_O75022	107987462
CD85b ; hLILRA6 ; ANA1182	leukocyte immunoglobulin-like receptor subfamily A member 6 (human)	http://purl.obolibrary.org/obo/PR_Q6PI73	-

CD85c ; hLILRB5 ; ANA963	leukocyte immunoglobulin-like receptor subfamily B member 5 (human)	http://purl.obolibrary.org/obo/PR_O75023	10990
CD85d ; hLILRB2 ; ANA1201	leukocyte immunoglobulin-like receptor subfamily B member 2 (human)	http://purl.obolibrary.org/obo/PR_Q8N423	-
CD85e ; hLILRA3 ; ANA1202	leukocyte immunoglobulin-like receptor subfamily A member 3 (human)	http://purl.obolibrary.org/obo/PR_Q8N6C8	11026
CD85f ; hLILRA5 ; ANA941	leukocyte immunoglobulin-like receptor subfamily A member 5 (human)	http://purl.obolibrary.org/obo/PR_A6NI73	353514
CD85g ; hLILRA4 ; ANA1128	leukocyte immunoglobulin-like receptor subfamily A member 4 (human)	http://purl.obolibrary.org/obo/PR_P59901	23547
CD85h ; hLILRA2 ; ANA1200	leukocyte immunoglobulin-like receptor subfamily A member 2 (human)	http://purl.obolibrary.org/obo/PR_Q8N149	11027
CD85i ; hLILRA1 ; ANA961	leukocyte immunoglobulin-like receptor subfamily A member 1 (human)	http://purl.obolibrary.org/obo/PR_O75019	11024
CD85J ; hLILRB1 ; ANA888	leukocyte immunoglobulin-like receptor subfamily B member 1 (human)	https://www.ncbi.nlm.nih.gov/gene/10859	10859
CD85k ; hLILRB4 ; ANA1205	leukocyte immunoglobulin-like receptor subfamily B member 4 (human)	http://purl.obolibrary.org/obo/PR_Q8NHJ6	11006
Cd86 ; mCD86 ; ANA1114	T-lymphocyte activation antigen CD86 (mouse)	http://purl.obolibrary.org/obo/PR_P42082	12524
CD87 ; hPLAUR ; ANA1140	urokinase plasminogen activator surface receptor (human)	http://purl.obolibrary.org/obo/PR_Q03405	5329

CD88 ; hC5AR1 ; ANA1063	C5a anaphylatoxin chemotactic receptor 1 (human)	http://purl.obolibrary.org/obo/PR_P21730	728
CD89 ; hFCAR ; ANA1075	immunoglobulin alpha Fc receptor (human)	http://purl.obolibrary.org/obo/PR_P24071	2204
Cd8a ; mCD8A ; ANA974	T-cell surface glycoprotein CD8 alpha chain (mouse)	http://purl.obolibrary.org/obo/PR_P01731	12525
CD8b ; hCD8B ; ANA1007	T-cell surface glycoprotein CD8 beta chain (human)	http://purl.obolibrary.org/obo/PR_P10966	926
Cd8b1 ; mCD8B ; ANA1004	T-cell surface glycoprotein CD8 beta chain (mouse)	http://purl.obolibrary.org/obo/PR_P10300	12526
CD9 ; hCD9 ; ANA1068	CD9 antigen (human)	http://purl.obolibrary.org/obo/PR_P21926	928
Cd9 ; mCD9 ; ANA1108	CD9 antigen (mouse)	http://purl.obolibrary.org/obo/PR_P40240	12527
CD90 ; hTHY1 ; ANA934	Thy-1 membrane glycoprotein (human)	http://purl.obolibrary.org/obo/PR_P04216	-
CD91 ; hLRP1 ; ANA1144	prolow-density lipoprotein receptor-related protein 1 (human)	http://purl.obolibrary.org/obo/PR_Q07954	4035
Cd93 ; mCD93 ; ANA971	complement component C1q receptor (mouse)	http://purl.obolibrary.org/obo/PR_O89103	17064
CD94 ; hKLRD1 ; ANA884	natural killer cells antigen CD94 (human)	https://www.ncbi.nlm.nih.gov/gene/3824	3824

CD95 ; hFAS ; ANA85	tumor necrosis factor receptor superfamily member 6 (human)	http://www.ncbi.nlm.nih.gov/gene/355	355
CD96 ; hCD96 ; ANA1106	T-cell surface protein tactile (human)	http://purl.obolibrary.org/obo/PR_P40200	10225
Cd96 ; mCD96 ; ANA1165	T-cell surface protein tactile (mouse)	http://purl.obolibrary.org/obo/PR_Q3U0X8	84544
CD97 ; hADGRE5 ; ANA1120	CD97 antigen (human)	http://purl.obolibrary.org/obo/PR_P48960	976
CD98 ; hSLC7A5 ; ANA1136	large neutral amino acids transporter small subunit 1 (human)	http://purl.obolibrary.org/obo/PR_Q01650	8140
CD99 ; hCD99 ; ANA1031	CD99 antigen (human)	http://purl.obolibrary.org/obo/PR_P14209	4267
Cd99l2 ; mCD99L2 ; ANA1193	CD99 antigen-like protein 2 (mouse)	http://purl.obolibrary.org/obo/PR_Q8BIF0	171486
CDw113 ; hNECTIN3 ; ANA1243	nectin-3 (human)	http://purl.obolibrary.org/obo/PR_Q9NQS3	25945
CDw218b ; hIL18RAP ; ANA972	interleukin-18 receptor accessory protein (human)	http://purl.obolibrary.org/obo/PR_O95256	8807
CDw293 ; hBMPR1B ; ANA945	bone morphogenetic protein receptor type-1B (human)	http://purl.obolibrary.org/obo/PR_O00238	658
CDw325 ; hCDH2 ; ANA1055	cadherin-2 (human)	http://purl.obolibrary.org/obo/PR_P19022	1000

CDw327 ; hSIGLEC6 ; ANA955	sialic acid-binding Ig-like lectin 6 (human)	http://purl.obolibrary.org/obo/PR_O43699	946
CDw328 ; hSIGLEC7 ; ANA1262	sialic acid-binding Ig-like lectin 7 (human)	http://purl.obolibrary.org/obo/PR_Q9Y286	27036
CDw329 ; hSIGLEC9 ; ANA1263	sialic acid-binding Ig-like lectin 9 (human)	http://purl.obolibrary.org/obo/PR_Q9Y336	27180
CDw338 ; hABCG2 ; ANA1260	ATP-binding cassette sub-family G member 2 (human)	http://purl.obolibrary.org/obo/PR_Q9UNQ0	9429
CDW92 ; hSLC44A1 ; ANA1211	choline transporter-like protein 1 (human)	http://purl.obolibrary.org/obo/PR_Q8WWI5	23446
CENPB ; hCENPB ; ANA821	major centromere autoantigen B (human)	http://www.ncbi.nlm.nih.gov/gene/1059	1059
CKLF ; hCKLF ; ANA45	chemokine-like factor (human)	http://www.ncbi.nlm.nih.gov/gene/51192	51192
Cklf ; mCKLF ; ANA508	chemokine-like factor (mouse)	http://www.ncbi.nlm.nih.gov/gene/75458	75458
CLA, CD162 ; hSELPLG ; ANA903	P-selectin glycoprotein ligand 1 (human)	https://www.ncbi.nlm.nih.gov/gene/6404	6404
CLCF1 ; hCLCF1 ; ANA46	cardiotrophin-like cytokine factor 1 (human)	http://www.ncbi.nlm.nih.gov/gene/23529	23529
Clcf1 ; mCLCF1 ; ANA509	cardiotrophin-like cytokine factor 1 (mouse)	http://www.ncbi.nlm.nih.gov/gene/56708	56708

Cmtm1 ; CMTM1 ; ANA510	CKLF-like MARVEL transmembrane domain-containing protein 1	http://www.ncbi.nlm.nih.gov/gene/100504164	100504164
CMTM1 ; hCMTM1 ; ANA47	CKLF-like MARVEL transmembrane domain-containing protein 1 (human)	http://www.ncbi.nlm.nih.gov/gene/113540	113540
CMTM6 ; hCMTM6 ; ANA48	CKLF-like MARVEL transmembrane domain-containing protein 6 (human)	http://www.ncbi.nlm.nih.gov/gene/54918	54918
Cmtm6 ; mCMTM6 ; ANA511	CKLF-like MARVEL transmembrane domain-containing protein 6 (mouse)	http://www.ncbi.nlm.nih.gov/gene/67213	67213
CMTM7 ; hCMTM7 ; ANA49	CKLF-like MARVEL transmembrane domain-containing protein 7 (human)	http://www.ncbi.nlm.nih.gov/gene/112616	112616
Cmtm7 ; mCMTM7 ; ANA512	CKLF-like MARVEL transmembrane domain-containing protein 7 (mouse)	http://www.ncbi.nlm.nih.gov/gene/102545	102545
CNTFR ; hCNTFR ; ANA50	ciliary neurotrophic factor receptor subunit alpha (human)	http://www.ncbi.nlm.nih.gov/gene/1271	1271
Cntfr ; mCNTFR ; ANA513	ciliary neurotrophic factor receptor subunit alpha (mouse)	http://www.ncbi.nlm.nih.gov/gene/12804	12804
Csf1 ; mCSF1 ; ANA514	macrophage colony-stimulating factor 1 (mouse)	http://www.ncbi.nlm.nih.gov/gene/12977	12977
CSF1R ; hCSF1R ; ANA52	macrophage colony-stimulating factor 1 receptor (human)	http://www.ncbi.nlm.nih.gov/gene/1436	1436
Csf1r ; mCSF1R ; ANA515	macrophage colony-stimulating factor 1 receptor (mouse)	http://www.ncbi.nlm.nih.gov/gene/12978	12978

Csf2 ; mCSF2 ; ANA516	granulocyte-macrophage colony-stimulating factor (mouse)	http://www.ncbi.nlm.nih.gov/gene/12981	12981
CSF2RA ; hCSF2RA ; ANA54	granulocyte-macrophage colony-stimulating factor receptor subunit alpha (human)	http://www.ncbi.nlm.nih.gov/gene/1438	1438
Csf2ra ; mCSF2RA ; ANA517	granulocyte-macrophage colony-stimulating factor receptor subunit alpha (mouse)	http://www.ncbi.nlm.nih.gov/gene/12982	12982
CSF2RB ; hCSF2RB ; ANA55	cytokine receptor common subunit beta (human)	http://www.ncbi.nlm.nih.gov/gene/1439	1439
Csf2rb ; mCsf2rb ; ANA518	cytokine receptor common subunit beta (mouse)	http://www.ncbi.nlm.nih.gov/gene/12983	12983
CSF3 ; hCSF3 ; ANA56	granulocyte colony-stimulating factor (human)	http://www.ncbi.nlm.nih.gov/gene/1440	1440
Csf3 ; mCSF3 ; ANA519	granulocyte colony-stimulating factor (mouse)	http://www.ncbi.nlm.nih.gov/gene/12985	12985
CSF3R ; hCSF3R ; ANA57	granulocyte colony-stimulating factor receptor (human)	http://www.ncbi.nlm.nih.gov/gene/1441	1441
Csf3r ; mCSF3R ; ANA520	granulocyte colony-stimulating factor receptor (mouse)	http://www.ncbi.nlm.nih.gov/gene/12986	12986
CTACK ; hCCL27 ; ANA19	C-C motif chemokine 27 (human)	http://www.ncbi.nlm.nih.gov/gene/10850	10850
Cx3cr1 ; mCX3CR1 ; ANA522	CX3C chemokine receptor 1 (mouse)	http://www.ncbi.nlm.nih.gov/gene/13051	13051

Cxcl1 ; mCXCL1 ; ANA523	growth-regulated alpha protein (mouse)	http://www.ncbi.nlm.nih.gov/gene/14825	14825
CXCL11 ; hCXCL11 ; ANA62	C-X-C motif chemokine 11 (human)	http://www.ncbi.nlm.nih.gov/gene/6373	6373
Cxcl11 ; mCxcl11 ; ANA525	C-X-C motif chemokine 11 (mouse)	http://www.ncbi.nlm.nih.gov/gene/56066	56066
CXCL12 ; hCXCL12 ; ANA63	stromal cell-derived factor 1 (human)	http://www.ncbi.nlm.nih.gov/gene/6387	6387
Cxcl12 ; mCXCL12 ; ANA526	stromal cell-derived factor 1 (mouse)	http://www.ncbi.nlm.nih.gov/gene/20315	20315
CXCL13 ; hCXCL13 ; ANA64	C-X-C motif chemokine 13 (human)	http://www.ncbi.nlm.nih.gov/gene/10563	10563
Cxcl13 ; mCXCL13 ; ANA527	C-X-C motif chemokine 13 (mouse)	http://www.ncbi.nlm.nih.gov/gene/55985	55985
CXCL14 ; hCXCL14 ; ANA65	C-X-C motif chemokine 14 (human)	http://www.ncbi.nlm.nih.gov/gene/9547	9547
Cxcl14 ; mCXCL14 ; ANA528	C-X-C motif chemokine 14 (mouse)	http://www.ncbi.nlm.nih.gov/gene/57266	57266
CXCL16 ; hCXCL16 ; ANA66	C-X-C motif chemokine 16 (human)	http://www.ncbi.nlm.nih.gov/gene/58191	58191
Cxcl16 ; mCXCL16 ; ANA529	C-X-C motif chemokine 16 (mouse)	http://www.ncbi.nlm.nih.gov/gene/66102	66102

CXCL17 ; hCXCL17 ; ANA67	C-X-C motif chemokine 17 (human)	http://www.ncbi.nlm.nih.gov/gene/284340	284340
Cxcl17 ; mCXCL17 ; ANA530	C-X-C motif chemokine 17 (mouse)	http://www.ncbi.nlm.nih.gov/gene/232983	232983
Cxcl2 ; mCxcl2 ; ANA531	C-X-C motif chemokine 2 (mouse)	http://www.ncbi.nlm.nih.gov/gene/20310	20310
CXCL3 ; hCXCL3 ; ANA69	C-X-C motif chemokine 3 (human)	http://www.ncbi.nlm.nih.gov/gene/2921	2921
Cxcl3 ; mCxcl3 ; ANA532	C-X-C motif chemokine 3 (mouse)	http://www.ncbi.nlm.nih.gov/gene/330122	330122
CXCL5 ; hCXCL5 ; ANA70	C-X-C motif chemokine 5 (human)	http://www.ncbi.nlm.nih.gov/gene/6374	6374
Cxcl5 ; mCXCL5 ; ANA533	C-X-C motif chemokine 5 (mouse)	http://www.ncbi.nlm.nih.gov/gene/20311	20311
CXCL6 ; hCXCL6 ; ANA71	C-X-C motif chemokine 6 (human)	http://www.ncbi.nlm.nih.gov/gene/6372	6372
CXCL9 ; hCXCL9 ; ANA73	C-X-C motif chemokine 9 (human)	http://www.ncbi.nlm.nih.gov/gene/4283	4283
Cxcl9 ; mCXCL9 ; ANA534	C-X-C motif chemokine 9 (mouse)	http://www.ncbi.nlm.nih.gov/gene/17329	17329
CXCR1 ; hCXCR1 ; ANA74	C-X-C chemokine receptor type 1 (human)	http://www.ncbi.nlm.nih.gov/gene/3577	3577
Cxcr1 ; mCxcr1 ; ANA535	C-X-C chemokine receptor type 1 (mouse)	http://www.ncbi.nlm.nih.gov/gene/227288	227288

CXCR2 ; hCXCR2 ; ANA75	C-X-C chemokine receptor type 2 (human)	http://www.ncbi.nlm.nih.gov/gene/3579	3579
Cxcr2 ; mCXCR2 ; ANA536	C-X-C chemokine receptor type 2 (mouse)	http://www.ncbi.nlm.nih.gov/gene/12765	12765
CXCR3 ; hCXCR3 ; ANA76	C-X-C chemokine receptor type 3 (human)	http://www.ncbi.nlm.nih.gov/gene/2833	2833
Cxcr3 ; mCXCR3 ; ANA537	C-X-C chemokine receptor type 3 (mouse)	http://www.ncbi.nlm.nih.gov/gene/12766	12766
CXCR4 ; hCXCR4 ; ANA77	C-X-C chemokine receptor type 4 (human)	http://www.ncbi.nlm.nih.gov/gene/7852	7852
Cxcr4 ; mCXCR4 ; ANA538	C-X-C chemokine receptor type 4 (mouse)	http://www.ncbi.nlm.nih.gov/gene/12767	12767
CXCR5 ; hCXCR5 ; ANA78	C-X-C chemokine receptor type 5 (human)	http://www.ncbi.nlm.nih.gov/gene/643	643
Cxcr5 ; mCXCR5 ; ANA539	C-X-C chemokine receptor type 5 (mouse)	http://www.ncbi.nlm.nih.gov/gene/12145	12145
CXCR6 ; hCXCR6 ; ANA79	C-X-C chemokine receptor type 6 (human)	http://www.ncbi.nlm.nih.gov/gene/10663	10663
Cxcr6 ; mCXCR6 ; ANA540	C-X-C chemokine receptor type 6 (mouse)	http://www.ncbi.nlm.nih.gov/gene/80901	80901
DC-SIGN1 ; hCD209 ; ANA869	CD209 antigen (human)	https://www.ncbi.nlm.nih.gov/gene/30835	30835

EBI3 ; hEBI3 ; ANA80	interleukin-27 subunit beta (human)	http://www.ncbi.nlm.nih.gov/gene/10148	10148
Ebi3 ; mEBI3 ; ANA541	interleukin-27 subunit beta (mouse)	http://www.ncbi.nlm.nih.gov/gene/50498	50498
EGF ; hEGF ; ANA81	pro-epidermal growth factor (human)	http://www.ncbi.nlm.nih.gov/gene/1950	1950
Egf ; mEGF ; ANA542	pro-epidermal growth factor (mouse)	http://www.ncbi.nlm.nih.gov/gene/13645	13645
EGFR ; hEGFR ; ANA82	epidermal growth factor receptor (human)	http://www.ncbi.nlm.nih.gov/gene/1956	1956
Egfr ; mEGFR ; ANA543	epidermal growth factor receptor (mouse)	http://www.ncbi.nlm.nih.gov/gene/13649	13649
Eotaxin ; hCCL11 ; ANA3	eotaxin (human)	http://www.ncbi.nlm.nih.gov/gene/6356	6356
Eotaxin ; mCCL11 ; ANA477	eotaxin (mouse)	http://www.ncbi.nlm.nih.gov/gene/20292	20292
EPO ; hEPO ; ANA83	erythropoietin (human)	http://www.ncbi.nlm.nih.gov/gene/2056	2056
Epo ; mEPO ; ANA544	erythropoietin (mouse)	http://www.ncbi.nlm.nih.gov/gene/13856	13856
EPOR ; hEPOR ; ANA84	erythropoietin receptor (human)	http://www.ncbi.nlm.nih.gov/gene/2057	2057
Epor ; mEPOR ; ANA545	erythropoietin receptor (mouse)	http://www.ncbi.nlm.nih.gov/gene/13857	13857

Fas ; mFAS ; ANA546	tumor necrosis factor receptor superfamily member 6 (mouse)	http://www.ncbi.nlm.nih.gov/gene/14102	14102
Fasl ; mFASLG ; ANA547	tumor necrosis factor ligand superfamily member 6 (mouse)	http://www.ncbi.nlm.nih.gov/gene/14103	14103
FASLG ; hFASLG ; ANA86	tumor necrosis factor ligand superfamily member 6 (human)	http://www.ncbi.nlm.nih.gov/gene/356	356
FGF1 ; hFGF1 ; ANA87	fibroblast growth factor 1 (human)	http://www.ncbi.nlm.nih.gov/gene/2246	2246
Fgf1 ; mFGF1 ; ANA548	fibroblast growth factor 1 (mouse)	http://www.ncbi.nlm.nih.gov/gene/14164	14164
FGFB ; hFGF2 ; ANA88	fibroblast growth factor 2 (human)	http://www.ncbi.nlm.nih.gov/gene/2247	2247
Fgfb ; mFGF2 ; ANA549	fibroblast growth factor 2 (mouse)	http://www.ncbi.nlm.nih.gov/gene/14173	14173
FIGF ; hVEGFD ; ANA710	vascular endothelial growth factor D (human)	http://www.ncbi.nlm.nih.gov/gene/2277	2277
FLT3 ; hFLT3 ; ANA89	receptor-type tyrosine-protein kinase FLT3 (human)	http://www.ncbi.nlm.nih.gov/gene/2322	2322
Flt3 ; mFLT3 ; ANA550	receptor-type tyrosine-protein kinase FLT3 (mouse)	http://www.ncbi.nlm.nih.gov/gene/14255	14255
Flt3l ; mFLT3LG ; ANA551	fms-related tyrosine kinase 3 ligand (mouse)	http://www.ncbi.nlm.nih.gov/gene/14256	14256
FLT3LG ; hFLT3LG ; ANA90	fms-related tyrosine kinase 3 ligand (human)	http://www.ncbi.nlm.nih.gov/gene/2323	2323

FOXP3 ; hFOXP3 ; ANA874	forkhead box protein P3 (human)	https://www.ncbi.nlm.nih.gov/gene/50943	50943
FRACTALKINE ; hCX3CL1 ; ANA58	fractalkine (human)	http://www.ncbi.nlm.nih.gov/gene/6376	6376
Fractalkine ; mCX3CL1 ; ANA521	fractalkine (mouse)	http://www.ncbi.nlm.nih.gov/gene/20312	20312
GDF15 ; hGDF15 ; ANA91	growth/differentiation factor 15 (human)	http://www.ncbi.nlm.nih.gov/gene/9518	9518
Gdf15 ; mGDF15 ; ANA552	growth/differentiation factor 15 (mouse)	http://www.ncbi.nlm.nih.gov/gene/23886	23886
GMCSF ; hCSF2 ; ANA53	granulocyte-macrophage colony-stimulating factor (human)	http://www.ncbi.nlm.nih.gov/gene/1437	1437
GranB ; hGZMB ; ANA897	granzyme B (human)	https://www.ncbi.nlm.nih.gov/gene/3002	3002
GRO ; hCXCL1 ; ANA60	growth-regulated alpha protein (human)	http://www.ncbi.nlm.nih.gov/gene/2919	2919
HGF ; hHGF ; ANA92	hepatocyte growth factor (human)	http://www.ncbi.nlm.nih.gov/gene/3082	3082
Hgf ; mHGF ; ANA553	hepatocyte growth factor (mouse)	http://www.ncbi.nlm.nih.gov/gene/15234	15234
hIKZF2 ; ; ANA1274	zinc finger protein Helios	https://www.ncbi.nlm.nih.gov/gene/22807	22807
HLA-A ; hHLA-A ; ANA938	HLA class I histocompatibility antigen A alpha chain (human)	http://purl.obolibrary.org/obo/PR_000036948	-

HLA-C ; hHLA-C ; ANA939	HLA class I histocompatibility antigen C alpha chain (human)	http://purl.obolibrary.org/obo/PR_000036950	-
HLA-E ; hHLA-E ; ANA1029	HLA class I histocompatibility antigen, alpha chain E (human)	http://purl.obolibrary.org/obo/PR_P13747	3133
HLA-G ; hHLA-G ; ANA1049	HLA class I histocompatibility antigen, alpha chain G (human)	http://purl.obolibrary.org/obo/PR_P17693	3135
HLADR ; hHLA-DRA ; ANA812	HLA class II histocompatibility antigen, DR alpha chain (human)	http://purl.obolibrary.org/obo/PR_P01903	3122
hMR1 ; ; ANA1279	MHC class I-related gene protein	https://www.ncbi.nlm.nih.gov/gene/3140	3140
hTIGIT ; ; ANA1272	T-cell immunoreceptor with Ig and ITIM domains	https://www.ncbi.nlm.nih.gov/gene/201633	201633
hTRAV1-2 ; ; ANA1277	T cell receptor alpha variable 1-2	https://www.ncbi.nlm.nih.gov/gene/28692	28692
hTRD ; ; ANA1278	T cell receptor delta constant	https://www.ncbi.nlm.nih.gov/gene/6964	6964
hTRDV2 ; ; ANA1276	T cell receptor delta variable 2	https://www.ncbi.nlm.nih.gov/gene/28517	28517
ICAM1 ; ICAM1 ; ANA705	ICAM1 (human)	http://www.ncbi.nlm.nih.gov/gene/3383	3383
IFNA ; fam:hIFNA ; ANA717	interferon alpha (human)	http://www.ncbi.nlm.nih.gov/gene/3438	3438

IFNA1 ; Ifna1 ; ANA93	interferon alpha-1	http://www.ncbi.nlm.nih.gov/gene/3439	3439
Ifna1 ; mIfna1 ; ANA554	interferon alpha-1 (mouse)	http://www.ncbi.nlm.nih.gov/gene/15962	15962
IFNA10 ; hIFNA10 ; ANA94	interferon alpha-10 (human)	http://www.ncbi.nlm.nih.gov/gene/3446	3446
Ifna10 ; IFNA10 ; ANA555	interferon alpha-10	http://www.ncbi.nlm.nih.gov/gene/110296	110296
IFNA13 ; Ifna13 ; ANA95	interferon alpha-13	http://www.ncbi.nlm.nih.gov/gene/3447	3447
Ifna13 ; mIfna13 ; ANA556	interferon alpha-13 (mouse)	http://www.ncbi.nlm.nih.gov/gene/230396	230396
IFNA14 ; hIFNA14 ; ANA96	interferon alpha-14 (human)	http://www.ncbi.nlm.nih.gov/gene/3448	3448
Ifna14 ; IFNA14 ; ANA557	interferon alpha-14	http://www.ncbi.nlm.nih.gov/gene/404549	404549
IFNA16 ; hIFNA16 ; ANA97	interferon alpha-16 (human)	http://www.ncbi.nlm.nih.gov/gene/3449	3449
Ifna16 ; IFNA16 ; ANA558	interferon alpha-16	http://www.ncbi.nlm.nih.gov/gene/230398	230398
IFNA17 ; hIFNA17 ; ANA98	interferon alpha-17 (human)	http://www.ncbi.nlm.nih.gov/gene/3451	3451
IFNA2 ; hIFNA2 ; ANA99	interferon alpha-2 (human)	http://www.ncbi.nlm.nih.gov/gene/3440	3440

Ifna2 ; mIfna2 ; ANA559	interferon alpha-2 (mouse)	http://www.ncbi.nlm.nih.gov/gene/15965	15965
IFNA21 ; hIFNA21 ; ANA100	interferon alpha-21 (human)	http://www.ncbi.nlm.nih.gov/gene/3452	3452
IFNA4 ; hIFNA4 ; ANA101	interferon alpha-4 (human)	http://www.ncbi.nlm.nih.gov/gene/3441	3441
Ifna4 ; mIfna4 ; ANA560	interferon alpha-4 (mouse)	http://www.ncbi.nlm.nih.gov/gene/15967	15967
IFNA5 ; hIFNA5 ; ANA102	interferon alpha-5 (human)	http://www.ncbi.nlm.nih.gov/gene/3442	3442
Ifna5 ; mIfna5 ; ANA561	interferon alpha-5 (mouse)	http://www.ncbi.nlm.nih.gov/gene/15968	15968
IFNA6 ; hIFNA6 ; ANA103	interferon alpha-6 (human)	http://www.ncbi.nlm.nih.gov/gene/3443	3443
Ifna6 ; mIfna6 ; ANA562	interferon alpha-6 (mouse)	http://www.ncbi.nlm.nih.gov/gene/15969	15969
IFNA7 ; hIFNA7 ; ANA104	interferon alpha-7 (human)	http://www.ncbi.nlm.nih.gov/gene/3444	3444
Ifna7 ; mIfna7 ; ANA563	interferon alpha-7 (mouse)	http://www.ncbi.nlm.nih.gov/gene/15970	15970
IFNA8 ; hIFNA8 ; ANA105	interferon alpha-8 (human)	http://www.ncbi.nlm.nih.gov/gene/3445	3445
IFNAR1 ; hIFNAR1 ; ANA106	interferon alpha/beta receptor 1 (human)	http://www.ncbi.nlm.nih.gov/gene/3454	3454

Ifnar1 ; mIFNAR1 ; ANA565	interferon alpha/beta receptor 1 (mouse)	http://www.ncbi.nlm.nih.gov/gene/15975	15975
IFNAR2 ; hIFNAR2 ; ANA107	interferon alpha/beta receptor 2 (human)	http://www.ncbi.nlm.nih.gov/gene/3455	3455
Ifnar2 ; mIFNAR2 ; ANA566	interferon alpha/beta receptor 2 (mouse)	http://www.ncbi.nlm.nih.gov/gene/15976	15976
IFNB1 ; hIFNB1 ; ANA108	interferon beta (human)	http://www.ncbi.nlm.nih.gov/gene/3456	3456
Ifnb1 ; mIFNB1 ; ANA567	interferon beta (mouse)	http://www.ncbi.nlm.nih.gov/gene/15977	15977
IFNE ; hIFNE ; ANA109	interferon epsilon (human)	http://www.ncbi.nlm.nih.gov/gene/338376	338376
Ifne ; mIFNE ; ANA568	interferon epsilon (mouse)	http://www.ncbi.nlm.nih.gov/gene/230405	230405
IFNG ; hIFNG ; ANA110	interferon gamma (human)	http://www.ncbi.nlm.nih.gov/gene/3458	3458
Ifng ; mIFNG ; ANA569	interferon gamma (mouse)	http://www.ncbi.nlm.nih.gov/gene/15978	15978
IFNGR1 ; hIFNGR1 ; ANA111	interferon gamma receptor 1 (human)	http://www.ncbi.nlm.nih.gov/gene/3459	3459
Ifngr1 ; mIFNGR1 ; ANA570	interferon gamma receptor 1 (mouse)	http://www.ncbi.nlm.nih.gov/gene/15979	15979
IFNGR2 ; hIFNGR2 ; ANA112	interferon gamma receptor 2 (human)	http://www.ncbi.nlm.nih.gov/gene/3460	3460

Ifngr2 ; IFNGR2 ; ANA571	interferon-gamma receptor beta chain	http://www.ncbi.nlm.nih.gov/gene/15980	15980
IFNK ; hIFNK ; ANA113	interferon kappa (human)	http://www.ncbi.nlm.nih.gov/gene/56832	56832
Ifnk ; mIFNK ; ANA572	interferon kappa (mouse)	http://www.ncbi.nlm.nih.gov/gene/387510	387510
IFNL1 ; hIFNL1 ; ANA114	interferon lambda-1 (human)	http://www.ncbi.nlm.nih.gov/gene/282618	282618
Ifnl2 ; mIfnl2 ; ANA573	interferon lambda-2 (mouse)	http://www.ncbi.nlm.nih.gov/gene/330496	330496
IFNL3 ; hIFNL3 ; ANA116	interferon lambda-3 (human)	http://www.ncbi.nlm.nih.gov/gene/282617	282617
Ifnl3 ; mIfnl3 ; ANA574	interferon lambda-3 (mouse)	http://www.ncbi.nlm.nih.gov/gene/338374	338374
IFNLR1 ; hIFNLR1 ; ANA117	interferon lambda receptor 1 (human)	http://www.ncbi.nlm.nih.gov/gene/163702	163702
Ifnlr1 ; mIFNLR1 ; ANA575	interferon lambda receptor 1 (mouse)	http://www.ncbi.nlm.nih.gov/gene/242700	242700
IgA1 ; hIGHA1 ; ANA820	immunoglobulin heavy constant alpha 1 (human)	http://www.ncbi.nlm.nih.gov/gene/3493	3493
IgA2 ; hIGHA2 ; ANA819	immunoglobulin heavy constant alpha 2 (human)	http://www.ncbi.nlm.nih.gov/gene/3494	3494

IgD ; hIGHD ; ANA813	immunoglobulin heavy constant delta (human)	http://purl.obolibrary.org/obo/PR_P01880	3495
IGF1 ; IGF1 ; ANA713	IGF1 (human)	http://www.ncbi.nlm.nih.gov/gene/3479	3479
IGFBP3 ; IGFBP3 ; ANA706	IGFBP3 (human)	http://www.ncbi.nlm.nih.gov/gene/3486	3486
IgG ; ; ANA1281	immunoglobulin heavy constant gamma 1	https://www.genecards.org/cgi-bin/carddisp.pl?gene=IGHG1&keywords=IgG1	3500
IgM ; hIGHM ; ANA817	immunoglobulin heavy constant mu (human)	http://www.ncbi.nlm.nih.gov/gene/3507	3507
IL10 ; hIL10 ; ANA118	interleukin-10 (human)	http://www.ncbi.nlm.nih.gov/gene/3586	3586
Il10 ; mIL10 ; ANA576	interleukin-10 (mouse)	http://www.ncbi.nlm.nih.gov/gene/16153	16153
IL10RA ; hIL10RA ; ANA119	interleukin-10 receptor subunit alpha (human)	http://www.ncbi.nlm.nih.gov/gene/3587	3587
Il10ra ; mIL10RA ; ANA577	interleukin-10 receptor subunit alpha (mouse)	http://www.ncbi.nlm.nih.gov/gene/16154	16154
IL10RB ; hIL10RB ; ANA120	interleukin-10 receptor subunit beta (human)	http://www.ncbi.nlm.nih.gov/gene/3588	3588
Il10rb ; mIL10RB ; ANA578	interleukin-10 receptor subunit beta (mouse)	http://www.ncbi.nlm.nih.gov/gene/16155	16155

IL11 ; hIL11 ; ANA121	interleukin-11 (human)	http://www.ncbi.nlm.nih.gov/gene/3589	3589
Il11 ; mIL11 ; ANA579	interleukin-11 (mouse)	http://www.ncbi.nlm.nih.gov/gene/16156	16156
IL11RA ; hIL11RA ; ANA122	interleukin-11 receptor subunit alpha (human)	http://www.ncbi.nlm.nih.gov/gene/3590	3590
Il11ra1 ; mIl11ra1 ; ANA580	interleukin-11 receptor subunit alpha-1 (mouse)	http://www.ncbi.nlm.nih.gov/gene/16157	16157
IL12p35 ; hIL12A ; ANA123	interleukin-12 subunit alpha (human)	http://www.ncbi.nlm.nih.gov/gene/3592	3592
Il12p35 ; mIL12A ; ANA581	interleukin-12 subunit alpha (mouse)	http://www.ncbi.nlm.nih.gov/gene/16159	16159
IL12p40 ; hIL12B ; ANA124	interleukin-12 subunit beta (human)	http://www.ncbi.nlm.nih.gov/gene/3593	3593
IL12p40 ; mIL12B ; ANA582	interleukin-12 subunit beta (mouse)	http://www.ncbi.nlm.nih.gov/gene/16160	16160
IL12p70 ; hIL12 ; ANA800	interleukin-12 complex (human)	http://purl.obolibrary.org/obo/PR_000044524	
IL12RB1 ; hIL12RB1 ; ANA125	interleukin-12 receptor subunit beta-1 (human)	http://www.ncbi.nlm.nih.gov/gene/3594	3594
Il12rb1 ; mIL12RB1 ; ANA583	interleukin-12 receptor subunit beta-1 (mouse)	http://www.ncbi.nlm.nih.gov/gene/16161	16161
IL12RB2 ; hIL12RB2 ; ANA126	interleukin-12 receptor subunit beta-2 (human)	http://www.ncbi.nlm.nih.gov/gene/3595	3595

Il12rb2 ; mIL12RB2 ; ANA584	interleukin-12 receptor subunit beta-2 (mouse)	http://www.ncbi.nlm.nih.gov/gene/16162	16162
IL13 ; hIL13 ; ANA127	interleukin-13 (human)	http://www.ncbi.nlm.nih.gov/gene/3596	3596
Il13 ; mIL13 ; ANA585	interleukin-13 (mouse)	http://www.ncbi.nlm.nih.gov/gene/16163	16163
Il13ra1 ; mIL13RA1 ; ANA586	interleukin-13 receptor subunit alpha-1 (mouse)	http://www.ncbi.nlm.nih.gov/gene/16164	16164
Il13ra2 ; mIL13RA2 ; ANA587	interleukin-13 receptor subunit alpha-2 (mouse)	http://www.ncbi.nlm.nih.gov/gene/16165	16165
IL15 ; hIL15 ; ANA130	interleukin-15 (human)	http://www.ncbi.nlm.nih.gov/gene/3600	3600
Il15 ; mIL15 ; ANA588	interleukin-15 (mouse)	http://www.ncbi.nlm.nih.gov/gene/16168	16168
IL15RA ; hIL15RA ; ANA131	interleukin-15 receptor subunit alpha (human)	http://www.ncbi.nlm.nih.gov/gene/3601	3601
Il15ra ; mIL15RA ; ANA589	interleukin-15 receptor subunit alpha (mouse)	http://www.ncbi.nlm.nih.gov/gene/16169	16169
IL16 ; hIL16 ; ANA132	pro-interleukin-16 (human)	http://www.ncbi.nlm.nih.gov/gene/3603	3603
Il16 ; mIL16 ; ANA590	pro-interleukin-16 (mouse)	http://www.ncbi.nlm.nih.gov/gene/16170	16170

IL17 ; hIL17F-17A ; ANA801	interleukin 17F/17A heterodimer (human)	http://purl.obolibrary.org/obo/PR_000044528	
IL17A ; hIL17A ; ANA133	interleukin-17A (human)	http://www.ncbi.nlm.nih.gov/gene/3605	3605
Il17a ; mIL17A ; ANA591	interleukin-17A (mouse)	http://www.ncbi.nlm.nih.gov/gene/16171	16171
IL17B ; hIL17B ; ANA134	interleukin-17B (human)	http://www.ncbi.nlm.nih.gov/gene/27190	27190
Il17b ; mIL17B ; ANA592	interleukin-17B (mouse)	http://www.ncbi.nlm.nih.gov/gene/56069	56069
IL17C ; hIL17C ; ANA135	interleukin-17C (human)	http://www.ncbi.nlm.nih.gov/gene/27189	27189
Il17c ; mIL17C ; ANA593	interleukin-17C (mouse)	http://www.ncbi.nlm.nih.gov/gene/234836	234836
IL17D ; hIL17D ; ANA136	interleukin-17D (human)	http://www.ncbi.nlm.nih.gov/gene/53342	53342
Il17d ; IL17D ; ANA594	interleukin-17D	http://www.ncbi.nlm.nih.gov/gene/239114	239114
IL17F ; hIL17F ; ANA137	interleukin-17F (human)	http://www.ncbi.nlm.nih.gov/gene/112744	112744
Il17f ; mIL17F ; ANA595	interleukin-17F (mouse)	http://www.ncbi.nlm.nih.gov/gene/257630	257630

IL17RA ; hIL17RA ; ANA138	interleukin-17 receptor A (human)	http://www.ncbi.nlm.nih.gov/gene/23765	23765
Il17ra ; mIL17RA ; ANA596	interleukin-17 receptor A (mouse)	http://www.ncbi.nlm.nih.gov/gene/16172	16172
IL18 ; hIL18 ; ANA139	interleukin-18 (human)	http://www.ncbi.nlm.nih.gov/gene/3606	3606
Il18 ; mIL18 ; ANA597	interleukin-18 (mouse)	http://www.ncbi.nlm.nih.gov/gene/16173	16173
IL18R1 ; hIL18R1 ; ANA140	interleukin-18 receptor 1 (human)	http://www.ncbi.nlm.nih.gov/gene/8809	8809
il18r1 ; mIL18R1 ; ANA698	interleukin-18 receptor 1 (mouse)	http://www.ncbi.nlm.nih.gov/gene/16182	16182
IL19 ; hIL19 ; ANA141	interleukin-19 (human)	http://www.ncbi.nlm.nih.gov/gene/29949	29949
Il19 ; mIL19 ; ANA598	interleukin-19 (mouse)	http://www.ncbi.nlm.nih.gov/gene/329244	329244
IL1A ; hIL1A ; ANA142	interleukin-1 alpha (human)	http://www.ncbi.nlm.nih.gov/gene/3552	3552
Il1a ; mIL1A ; ANA599	interleukin-1 alpha (mouse)	http://www.ncbi.nlm.nih.gov/gene/16175	16175
IL1B ; hIL1B ; ANA143	interleukin-1 beta (human)	http://www.ncbi.nlm.nih.gov/gene/3553	3553

Il1b ; mIL1B ; ANA600	interleukin-1 beta (mouse)	http://www.ncbi.nlm.nih.gov/gene/16176	16176
IL1F10 ; hIL1F10 ; ANA144	interleukin-1 family member 10 (human)	http://www.ncbi.nlm.nih.gov/gene/84639	84639
Il1f10 ; mIL1F10 ; ANA601	interleukin-1 family member 10 (mouse)	http://www.ncbi.nlm.nih.gov/gene/215274	215274
Il1f5 ; mIL36RN ; ANA602	interleukin-36 receptor antagonist protein (mouse)	http://www.ncbi.nlm.nih.gov/gene/54450	54450
IL1R1 ; hIL1R1 ; ANA145	interleukin-1 receptor type 1 (human)	http://www.ncbi.nlm.nih.gov/gene/3554	3554
Il1r1 ; mIL1R1 ; ANA603	interleukin-1 receptor type 1 (mouse)	http://www.ncbi.nlm.nih.gov/gene/16177	16177
IL1R2 ; hIL1R2 ; ANA146	interleukin-1 receptor type 2 (human)	http://www.ncbi.nlm.nih.gov/gene/7850	7850
Il1r2 ; mIL1R2 ; ANA604	interleukin-1 receptor type 2 (mouse)	http://www.ncbi.nlm.nih.gov/gene/16178	16178
IL1RN ; hIL1RN ; ANA147	interleukin-1 receptor antagonist protein (human)	http://www.ncbi.nlm.nih.gov/gene/3557	3557
Il1rn ; mIL1RN ; ANA605	interleukin-1 receptor antagonist protein (mouse)	http://www.ncbi.nlm.nih.gov/gene/16181	16181
IL2 ; hIL2 ; ANA148	interleukin-2 (human)	http://www.ncbi.nlm.nih.gov/gene/3558	3558

Il2 ; mIL2 ; ANA606	interleukin-2 (mouse)	http://www.ncbi.nlm.nih.gov/gene/16183	16183
IL20 ; hIL20 ; ANA149	interleukin-20 (human)	http://www.ncbi.nlm.nih.gov/gene/50604	50604
Il20 ; mIL20 ; ANA607	interleukin-20 (mouse)	http://www.ncbi.nlm.nih.gov/gene/58181	58181
IL20RA ; hIL20RA ; ANA150	interleukin-20 receptor subunit alpha (human)	http://www.ncbi.nlm.nih.gov/gene/53832	53832
Il20ra ; mIL20RA ; ANA608	interleukin-20 receptor subunit alpha (mouse)	http://www.ncbi.nlm.nih.gov/gene/237313	237313
IL20RB ; hIL20RB ; ANA151	interleukin-20 receptor subunit beta (human)	http://www.ncbi.nlm.nih.gov/gene/53833	53833
Il20rb ; IL20RB ; ANA609	interleukin-20 receptor subunit beta	http://www.ncbi.nlm.nih.gov/gene/213208	213208
IL21 ; hIL21 ; ANA152	interleukin-21 (human)	http://www.ncbi.nlm.nih.gov/gene/59067	59067
Il21 ; mIL21 ; ANA610	interleukin-21 (mouse)	http://www.ncbi.nlm.nih.gov/gene/60505	60505
IL21R ; hIL21R ; ANA153	interleukin-21 receptor (human)	http://www.ncbi.nlm.nih.gov/gene/50615	50615
Il21r ; mIL21R ; ANA611	interleukin-21 receptor (mouse)	http://www.ncbi.nlm.nih.gov/gene/60504	60504

IL22 ; hIL22 ; ANA154	interleukin-22 (human)	http://www.ncbi.nlm.nih.gov/gene/50616	50616
Il22 ; mIl22 ; ANA612	interleukin-22 (mouse)	http://www.ncbi.nlm.nih.gov/gene/50929	50929
IL22RA1 ; hIL22RA1 ; ANA155	interleukin-22 receptor subunit alpha-1 (human)	http://www.ncbi.nlm.nih.gov/gene/58985	58985
Il22ra1 ; mIL22RA1 ; ANA613	interleukin-22 receptor subunit alpha-1 (mouse)	http://www.ncbi.nlm.nih.gov/gene/230828	230828
IL22RA2 ; hIL22RA2 ; ANA156	interleukin-22 receptor subunit alpha-2 (human)	http://www.ncbi.nlm.nih.gov/gene/116379	116379
Il22ra2 ; mIL22RA2 ; ANA614	interleukin-22 receptor subunit alpha-2 (mouse)	http://www.ncbi.nlm.nih.gov/gene/237310	237310
IL23 ; hIL23 ; ANA802	interleukin-23 complex (human)	http://purl.obolibrary.org/obo/PR_000044525	
IL23A ; hIL23A ; ANA157	interleukin-23 subunit alpha (human)	http://www.ncbi.nlm.nih.gov/gene/51561	51561
Il23a ; mIL23A ; ANA615	interleukin-23 subunit alpha (mouse)	http://www.ncbi.nlm.nih.gov/gene/83430	83430
IL23R ; hIL23R ; ANA158	interleukin-23 receptor (human)	http://www.ncbi.nlm.nih.gov/gene/149233	149233
Il23r ; mIL23R ; ANA616	interleukin-23 receptor (mouse)	http://www.ncbi.nlm.nih.gov/gene/209590	209590

IL24 ; hIL24 ; ANA159	interleukin-24 (human)	http://www.ncbi.nlm.nih.gov/gene/11009	11009
Il24 ; mIL24 ; ANA617	interleukin-24 (mouse)	http://www.ncbi.nlm.nih.gov/gene/93672	93672
IL25 ; hIL25 ; ANA160	interleukin-25 (human)	http://www.ncbi.nlm.nih.gov/gene/64806	64806
Il25 ; mMYDGF ; ANA618	myeloid-derived growth factor (mouse)	http://www.ncbi.nlm.nih.gov/gene/140806	140806
IL26 ; hIL26 ; ANA161	interleukin-26 (human)	http://www.ncbi.nlm.nih.gov/gene/55801	55801
IL27 ; hIL27 ; ANA162	interleukin-27 subunit alpha (human)	http://www.ncbi.nlm.nih.gov/gene/246778	246778
Il27 ; mIL27 ; ANA619	interleukin-27 subunit alpha (mouse)	http://www.ncbi.nlm.nih.gov/gene/246779	246779
IL28A ; hIFNL2 ; ANA115	interferon lambda-2 (human)	http://www.ncbi.nlm.nih.gov/gene/282616	282616
IL2RA ; hIL2RA ; ANA163	interleukin-2 receptor subunit alpha (human)	http://www.ncbi.nlm.nih.gov/gene/3559	3559
Il2ra ; mIL2RA ; ANA620	interleukin-2 receptor subunit alpha (mouse)	http://www.ncbi.nlm.nih.gov/gene/16184	16184
IL2RB ; hIL2RB ; ANA164	interleukin-2 receptor subunit beta (human)	http://www.ncbi.nlm.nih.gov/gene/3560	3560

Il2rb ; mIL2RB ; ANA621	interleukin-2 receptor subunit beta (mouse)	http://www.ncbi.nlm.nih.gov/gene/16185	16185
IL2RG ; hIL2RG ; ANA165	cytokine receptor common subunit gamma (human)	http://www.ncbi.nlm.nih.gov/gene/3561	3561
Il2rg ; mIL2RG ; ANA622	cytokine receptor common subunit gamma (mouse)	http://www.ncbi.nlm.nih.gov/gene/16186	16186
IL3 ; hIL3 ; ANA166	interleukin-3 (human)	http://www.ncbi.nlm.nih.gov/gene/3562	3562
Il3 ; mIL3 ; ANA623	interleukin-3 (mouse)	http://www.ncbi.nlm.nih.gov/gene/16187	16187
IL31 ; hIL31 ; ANA167	interleukin-31 (human)	http://www.ncbi.nlm.nih.gov/gene/386653	386653
Il31 ; mIL31 ; ANA624	interleukin-31 (mouse)	http://www.ncbi.nlm.nih.gov/gene/76399	76399
IL32 ; hIL32 ; ANA168	interleukin-32 (human)	http://www.ncbi.nlm.nih.gov/gene/9235	9235
IL33 ; hIL33 ; ANA169	interleukin-33 (human)	http://www.ncbi.nlm.nih.gov/gene/90865	90865
Il33 ; mIL33 ; ANA625	interleukin-33 (mouse)	http://www.ncbi.nlm.nih.gov/gene/77125	77125
IL34 ; hIL34 ; ANA170	interleukin-34 (human)	http://www.ncbi.nlm.nih.gov/gene/146433	146433

Il34 ; mIL34 ; ANA626	interleukin-34 (mouse)	http://www.ncbi.nlm.nih.gov/gene/76527	76527
IL36G ; hIL36G ; ANA171	interleukin-36 gamma (human)	http://www.ncbi.nlm.nih.gov/gene/56300	56300
IL36RN ; hIL36RN ; ANA172	interleukin-36 receptor antagonist protein (human)	http://www.ncbi.nlm.nih.gov/gene/26525	26525
Il3ra ; mIL3RA ; ANA627	interleukin-3 receptor subunit alpha (mouse)	http://www.ncbi.nlm.nih.gov/gene/16188	16188
IL4 ; hIL4 ; ANA174	interleukin-4 (human)	http://www.ncbi.nlm.nih.gov/gene/3565	3565
Il4 ; mIL4 ; ANA628	interleukin-4 (mouse)	http://www.ncbi.nlm.nih.gov/gene/16189	16189
IL4R ; hIL4R ; ANA175	interleukin-4 receptor subunit alpha (human)	http://www.ncbi.nlm.nih.gov/gene/3566	3566
Il4ra ; mIL4R ; ANA629	interleukin-4 receptor subunit alpha (mouse)	http://www.ncbi.nlm.nih.gov/gene/16190	16190
IL5 ; hIL5 ; ANA176	interleukin-5 (human)	http://www.ncbi.nlm.nih.gov/gene/3567	3567
Il5 ; mIL5 ; ANA630	interleukin-5 (mouse)	http://www.ncbi.nlm.nih.gov/gene/16191	16191
IL5RA ; hIL5RA ; ANA177	interleukin-5 receptor subunit alpha (human)	http://www.ncbi.nlm.nih.gov/gene/3568	3568

Il5ra ; mIL5RA ; ANA631	interleukin-5 receptor subunit alpha (mouse)	http://www.ncbi.nlm.nih.gov/gene/16192	16192
IL6 ; hIL6 ; ANA178	interleukin-6 (human)	http://www.ncbi.nlm.nih.gov/gene/3569	3569
Il6 ; mIL6 ; ANA632	interleukin-6 (mouse)	http://www.ncbi.nlm.nih.gov/gene/16193	16193
IL6R ; hIL6R ; ANA179	interleukin-6 receptor subunit alpha (human)	http://www.ncbi.nlm.nih.gov/gene/3570	3570
Il6ra ; mIL6R ; ANA633	interleukin-6 receptor subunit alpha (mouse)	http://www.ncbi.nlm.nih.gov/gene/16194	16194
IL6ST ; hIL6ST ; ANA180	interleukin-6 receptor subunit beta (human)	http://www.ncbi.nlm.nih.gov/gene/3572	3572
Il6st ; mIL6ST ; ANA634	interleukin-6 receptor subunit beta (mouse)	http://www.ncbi.nlm.nih.gov/gene/16195	16195
IL7 ; hIL7 ; ANA181	interleukin-7 (human)	http://www.ncbi.nlm.nih.gov/gene/3574	3574
Il7 ; mIL7 ; ANA635	interleukin-7 (mouse)	http://www.ncbi.nlm.nih.gov/gene/16196	16196
Il7r ; mIL7R ; ANA636	interleukin-7 receptor subunit alpha (mouse)	http://www.ncbi.nlm.nih.gov/gene/16197	16197
IL8 ; hCXCL8 ; ANA72	interleukin-8 (human)	http://www.ncbi.nlm.nih.gov/gene/3576	3576
IL9 ; hIL9 ; ANA183	interleukin-9 (human)	http://www.ncbi.nlm.nih.gov/gene/3578	3578

Il9 ; mIL9 ; ANA637	interleukin-9 (mouse)	http://www.ncbi.nlm.nih.gov/gene/16198	16198
IL9R ; hIL9R ; ANA184	interleukin-9 receptor (human)	http://www.ncbi.nlm.nih.gov/gene/3581	3581
Il9r ; mIL9R ; ANA638	interleukin-9 receptor (mouse)	http://www.ncbi.nlm.nih.gov/gene/16199	16199
IP-10 ; hCXCL10 ; ANA61	C-X-C motif chemokine 10 (human)	http://www.ncbi.nlm.nih.gov/gene/3627	3627
IP-10 ; mCXCL10 ; ANA524	C-X-C motif chemokine 10 (mouse)	http://www.ncbi.nlm.nih.gov/gene/15945	15945
Itgal ; mITGAL ; ANA1074	integrin alpha-L (mouse)	http://purl.obolibrary.org/obo/PR_P24063	-
Ki67 ; hMKI67 ; ANA889	proliferation marker protein Ki-67 (human)	https://www.ncbi.nlm.nih.gov/gene/4288	4288
Kir3dl1 ; mKir3dl1 ; ANA1134	killer cell immunoglobulin-like receptor 3DL1 (mouse)	http://purl.obolibrary.org/obo/PR_P83555	-
KIT ; hKIT ; ANA185	mast/stem cell growth factor receptor Kit (human)	http://www.ncbi.nlm.nih.gov/gene/3815	3815
Kit ; mKIT ; ANA639	mast/stem cell growth factor receptor Kit (mouse)	http://www.ncbi.nlm.nih.gov/gene/16590	16590
Kitl ; mKITLG ; ANA640	kit ligand (mouse)	http://www.ncbi.nlm.nih.gov/gene/17311	17311

KITLG ; hKITLG ; ANA186	kit ligand (human)	http://www.ncbi.nlm.nih.gov/gene/4254	4254
LBT ; hLTB ; ANA187	lymphotoxin-beta (human)	http://www.ncbi.nlm.nih.gov/gene/4050	4050
LECT1 ; hCNMD ; ANA188	leukocyte cell-derived chemotaxin 1 (human)	http://www.ncbi.nlm.nih.gov/gene/11061	11061
Lect1 ; mCNMD ; ANA641	leukocyte cell-derived chemotaxin 1 (mouse)	http://www.ncbi.nlm.nih.gov/gene/16840	16840
LECT2 ; hLECT2 ; ANA189	leukocyte cell-derived chemotaxin-2 (human)	http://www.ncbi.nlm.nih.gov/gene/3950	3950
Lect2 ; mLECT2 ; ANA642	leukocyte cell-derived chemotaxin-2 (mouse)	http://www.ncbi.nlm.nih.gov/gene/16841	16841
LEP ; LEP ; ANA714	LEP (human)	http://www.ncbi.nlm.nih.gov/gene/3952	3952
LIF ; hLIF ; ANA190	leukemia inhibitory factor (human)	http://www.ncbi.nlm.nih.gov/gene/3976	3976
Lif ; mLIF ; ANA643	leukemia inhibitory factor (mouse)	http://www.ncbi.nlm.nih.gov/gene/16878	16878
LIFR ; hLIFR ; ANA191	leukemia inhibitory factor receptor (human)	http://www.ncbi.nlm.nih.gov/gene/3977	3977
Lifr ; mLIFR ; ANA644	leukemia inhibitory factor receptor (mouse)	http://www.ncbi.nlm.nih.gov/gene/16880	16880
Ltb ; mLTB ; ANA646	lymphotoxin-beta (mouse)	http://www.ncbi.nlm.nih.gov/gene/16994	16994

LTBR ; hLTBR ; ANA193	tumor necrosis factor receptor superfamily member 3 (human)	http://www.ncbi.nlm.nih.gov/gene/4055	4055
Ltbr ; mLTBR ; ANA647	tumor necrosis factor receptor superfamily member 3 (mouse)	http://www.ncbi.nlm.nih.gov/gene/17000	17000
MCP1 ; hCCL2 ; ANA11	C-C motif chemokine 2 (human)	http://www.ncbi.nlm.nih.gov/gene/6347	6347
MCP3 ; hCCL7 ; ANA28	C-C motif chemokine 7 (human)	http://www.ncbi.nlm.nih.gov/gene/6354	6354
MCP4 ; hCCL13 ; ANA4	C-C motif chemokine 13 (human)	http://www.ncbi.nlm.nih.gov/gene/6357	6357
MCSF ; hCSF1 ; ANA51	macrophage colony-stimulating factor 1 (human)	http://www.ncbi.nlm.nih.gov/gene/1435	1435
MET ; hMET ; ANA194	hepatocyte growth factor receptor (human)	http://www.ncbi.nlm.nih.gov/gene/4233	4233
Met ; mMET ; ANA648	hepatocyte growth factor receptor (mouse)	http://www.ncbi.nlm.nih.gov/gene/17295	17295
MIF ; hMIF ; ANA195	macrophage migration inhibitory factor (human)	http://www.ncbi.nlm.nih.gov/gene/4282	4282
Mif ; mMIF ; ANA649	macrophage migration inhibitory factor (mouse)	http://www.ncbi.nlm.nih.gov/gene/17319	17319
mIKZF2 ; ; ANA1275	zinc finger protein Helios	https://www.ncbi.nlm.nih.gov/gene/22779	22779
MIP1A ; hCCL3 ; ANA20	C-C motif chemokine 3 (human)	http://www.ncbi.nlm.nih.gov/gene/6348	6348
MIP1B ; hCCL4 ; ANA24	C-C motif chemokine 4 (human)	http://www.ncbi.nlm.nih.gov/gene/6351	6351

Mip1b ; mCCL4 ; ANA489	C-C motif chemokine 4 (mouse)	http://www.ncbi.nlm.nih.gov/gene/20303	20303
MIP2 ; hCXCL2 ; ANA68	C-X-C motif chemokine 2 (human)	http://www.ncbi.nlm.nih.gov/gene/2920	2920
MPL ; hMPL ; ANA196	thrombopoietin receptor (human)	http://www.ncbi.nlm.nih.gov/gene/4352	4352
Mpl ; mMPL ; ANA650	thrombopoietin receptor (mouse)	http://www.ncbi.nlm.nih.gov/gene/17480	17480
MPO ; MPO ; ANA707	MPO (human)	http://www.ncbi.nlm.nih.gov/gene/4353	4353
MST1 ; hMST1 ; ANA197	hepatocyte growth factor-like protein (human)	http://www.ncbi.nlm.nih.gov/gene/4485	4485
Mst1 ; mMST1 ; ANA651	hepatocyte growth factor-like protein (mouse)	http://www.ncbi.nlm.nih.gov/gene/15235	15235
MST1R ; hMST1R ; ANA198	macrophage-stimulating protein receptor (human)	http://www.ncbi.nlm.nih.gov/gene/4486	4486
Mst1r ; mMST1R ; ANA652	macrophage-stimulating protein receptor (mouse)	http://www.ncbi.nlm.nih.gov/gene/19882	19882
mTIGIT ; ; ANA1273	T-cell immunoreceptor with Ig and ITIM domains	https://www.ncbi.nlm.nih.gov/gene/100043314	100043314
Nectin1 ; mNECTIN1 ; ANA1237	nectin-1 (mouse)	http://purl.obolibrary.org/obo/PR_Q9JKF6	58235
Nectin2 ; mNECTIN2 ; ANA1093	nectin-2 (mouse)	http://purl.obolibrary.org/obo/PR_P32507	19294

Nectin3 ; mNECTIN3 ; ANA1238	nectin-3 (mouse)	http://purl.obolibrary.org/obo/PR_Q9JLB9	58998
NGF ; NGF ; ANA699	NGF (human)	http://www.ncbi.nlm.nih.gov/gene/4803	4803
NKG2A ; hKLRC1 ; ANA861	NKG2-A/NKG2-B type II integral membrane protein (human)	https://www.ncbi.nlm.nih.gov/gene/3821	3821
NKP44 ; hNCR2 ; ANA885	natural cytotoxicity triggering receptor 2 (human)	https://www.ncbi.nlm.nih.gov/gene/9436	9436
OPG ; hTNFRSF11B ; ANA226	tumor necrosis factor receptor superfamily member 11B (human)	http://www.ncbi.nlm.nih.gov/gene/4982	4982
OSM ; hOSM ; ANA199	oncostatin-M (human)	http://www.ncbi.nlm.nih.gov/gene/5008	5008
Osm ; mOSM ; ANA653	oncostatin-M (mouse)	http://www.ncbi.nlm.nih.gov/gene/18413	18413
OSMR ; hOSMR ; ANA200	oncostatin-M-specific receptor subunit beta (human)	http://www.ncbi.nlm.nih.gov/gene/9180	9180
Osmr ; mOSMR ; ANA654	oncostatin-M-specific receptor subunit beta (mouse)	http://www.ncbi.nlm.nih.gov/gene/18414	18414
PAI1 ; SERPINE1 ; ANA708	SERPINE1 (human)	http://www.ncbi.nlm.nih.gov/gene/5054	5054
PAPPA ; PAPPA ; ANA700	PAPPA (human)	http://www.ncbi.nlm.nih.gov/gene/5069	5069
PD1 ; hPDCD1 ; ANA818	programmed cell death protein 1 (human)	http://www.ncbi.nlm.nih.gov/gene/5133	5133

PDGF ; hPDGF-AB ; ANA803	platelet-derived growth factor complex AB dimer (human)	http://purl.obolibrary.org/obo/PR_000044755	
PDGFA ; hPDGFA ; ANA201	platelet-derived growth factor subunit A (human)	http://www.ncbi.nlm.nih.gov/gene/5154	5154
Pdgfa ; mPDGFA ; ANA655	platelet-derived growth factor subunit A (mouse)	http://www.ncbi.nlm.nih.gov/gene/18590	18590
PDGFB ; hPDGFB ; ANA202	platelet-derived growth factor subunit B (human)	http://www.ncbi.nlm.nih.gov/gene/5155	5155
Pdgfb ; mPDGFB ; ANA656	platelet-derived growth factor subunit B (mouse)	http://www.ncbi.nlm.nih.gov/gene/18591	18591
PDGFRA ; hPDGFRA ; ANA203	platelet-derived growth factor receptor alpha (human)	http://www.ncbi.nlm.nih.gov/gene/5156	5156
Pdgfra ; mPDGFRA ; ANA657	platelet-derived growth factor receptor alpha (mouse)	http://www.ncbi.nlm.nih.gov/gene/18595	18595
PDGFRB ; hPDGFRB ; ANA204	platelet-derived growth factor receptor beta (human)	http://www.ncbi.nlm.nih.gov/gene/5159	5159
Pdgfrb ; mPDGFRB ; ANA658	platelet-derived growth factor receptor beta (mouse)	http://www.ncbi.nlm.nih.gov/gene/18596	18596
PDL2 ; hPDCD1LG2 ; ANA931	programmed cell death 1 ligand 2 (human)	http://purl.obolibrary.org/obo/PR_Q9BQ51	-
Perforin ; hPRF1 ; ANA890	perforin-1 (human)	https://www.ncbi.nlm.nih.gov/gene/5551	5551
PF4 ; hPF4 ; ANA205	platelet factor 4 (human)	http://www.ncbi.nlm.nih.gov/gene/5196	5196

Pf4 ; mPF4 ; ANA659	platelet factor 4 (mouse)	http://www.ncbi.nlm.nih.gov/gene/56744	56744
PF4V1 ; hPF4V1 ; ANA206	platelet factor 4 variant (human)	http://www.ncbi.nlm.nih.gov/gene/5197	5197
PIGF ; PIGF ; ANA715	PIGF (human)	http://www.ncbi.nlm.nih.gov/gene/5281	5281
PPBP ; hPPBP ; ANA207	platelet basic protein (human)	http://www.ncbi.nlm.nih.gov/gene/5473	5473
Ppbp ; PPBP ; ANA660	platelet basic protein	http://www.ncbi.nlm.nih.gov/gene/57349	57349
PRTN3 ; PRTN3 ; ANA703	PRTN3 (human)	http://www.ncbi.nlm.nih.gov/gene/5657	5657
pSTAT1 ; hSTAT1/iso:1/Phos:1 ; ANA907	signal transducer and activator of transcription 1 isoform 1 phosphorylated 1 (human)	http://purl.obolibrary.org/obo/PR_000026858	-
pSTAT3 ; hSTAT3/Phos:1 ; ANA908	signal transducer and activator of transcription 3 phosphorylated 1 (human)	http://purl.obolibrary.org/obo/PR_000045774	-
PTPRC ; ; ANA1285	receptor-type tyrosine-protein phosphatase C	https://www.ncbi.nlm.nih.gov/gene/5788	5788
RANKL ; hTNFSF11 ; ANA238	tumor necrosis factor ligand superfamily member 11 (human)	http://www.ncbi.nlm.nih.gov/gene/8600	8600
RANTES ; hCCL5 ; ANA27	C-C motif chemokine 5 (human)	http://www.ncbi.nlm.nih.gov/gene/6352	6352
RETN ; hRETN ; ANA208	resistin (human)	http://www.ncbi.nlm.nih.gov/gene/56729	56729

Retn ; mRETN ; ANA661	resistin (mouse)	http://www.ncbi.nlm.nih.gov/gene/57264	57264
SIGLEC-2 ; hCD22 ; ANA862	B-cell receptor CD22 (human)	https://www.ncbi.nlm.nih.gov/gene/933	933
SIGLEC-3 ; hCD33 ; ANA864	myeloid cell surface antigen CD33 (human)	https://www.ncbi.nlm.nih.gov/gene/945	945
SLAN ; hSECISBP2L ; ANA906	selenocysteine insertion sequence-binding protein 2-like (human)	https://www.ncbi.nlm.nih.gov/gene/9728	9728
SPP1 ; hSPP1 ; ANA209	osteopontin (human)	http://www.ncbi.nlm.nih.gov/gene/6696	6696
Spp1 ; mSPP1 ; ANA662	osteopontin (mouse)	http://www.ncbi.nlm.nih.gov/gene/20750	20750
STAT1 ; hSTAT1 ; ANA892	signal transducer and activator of transcription 1-alpha/beta (human)	https://www.ncbi.nlm.nih.gov/gene/6772	6772
STAT3 ; hSTAT3 ; ANA900	signal transducer and activator of transcription 3 (human)	https://www.ncbi.nlm.nih.gov/gene/6774	6774
STAT5 ; hSTAT5A ; ANA901	signal transducer and activator of transcription 5A (human)	https://www.ncbi.nlm.nih.gov/gene/6776	6776
TARC ; hCCL17 ; ANA8	C-C motif chemokine 17 (human)	http://www.ncbi.nlm.nih.gov/gene/6361	6361
TDGF1P2 ; hTDGF1P3 ; ANA210	teratocarcinoma-derived growth factor 3 (human)	http://www.ncbi.nlm.nih.gov/gene/22816	22816
TDGF1P3 ; TDGF1P3 ; ANA211	TDGF1P3 (human)	http://www.ncbi.nlm.nih.gov/gene/6998	6998

TGFA ; TGFA ; ANA212	TGFA (human)	http://www.ncbi.nlm.nih.gov/gene/7039	7039
Tgfa ; Tgfa ; ANA663	Tgfa (mouse)	http://www.ncbi.nlm.nih.gov/gene/21802	21802
TGFB1 ; hTGFB1 ; ANA213	transforming growth factor beta-1 (human)	http://www.ncbi.nlm.nih.gov/gene/7040	7040
Tgfb1 ; mTGFB1 ; ANA664	transforming growth factor beta-1 proprotein (mouse)	http://www.ncbi.nlm.nih.gov/gene/21803	21803
TGFB2 ; hTGFB2 ; ANA214	transforming growth factor beta-2 (human)	http://www.ncbi.nlm.nih.gov/gene/7042	7042
Tgfb2 ; mTGFB2 ; ANA665	transforming growth factor beta-2 proprotein (mouse)	http://www.ncbi.nlm.nih.gov/gene/21808	21808
TGFB3 ; hTGFB3 ; ANA215	transforming growth factor beta-3 (human)	http://www.ncbi.nlm.nih.gov/gene/7043	7043
Tgfb3 ; mTGFB3 ; ANA666	transforming growth factor beta-3 (mouse)	http://www.ncbi.nlm.nih.gov/gene/21809	21809
TGFBR1 ; hTGFBR1 ; ANA216	TGF-beta receptor type-1 (human)	http://www.ncbi.nlm.nih.gov/gene/7046	7046
Tgfbr1 ; mTGFBR1 ; ANA667	TGF-beta receptor type-1 (mouse)	http://www.ncbi.nlm.nih.gov/gene/21812	21812
TGFBR2 ; hTGFBR2 ; ANA217	TGF-beta receptor type-2 (human)	http://www.ncbi.nlm.nih.gov/gene/7048	7048
Tgfbr2 ; mTGFBR2 ; ANA668	TGF-beta receptor type-2 (mouse)	http://www.ncbi.nlm.nih.gov/gene/21813	21813

TGFBR3 ; hTGFBR3 ; ANA218	transforming growth factor beta receptor type 3 (human)	http://www.ncbi.nlm.nih.gov/gene/7049	7049
Tgfbr3 ; mTGFBR3 ; ANA669	transforming growth factor beta receptor type 3 (mouse)	http://www.ncbi.nlm.nih.gov/gene/21814	21814
THPO ; hTHPO ; ANA219	thrombopoietin (human)	http://www.ncbi.nlm.nih.gov/gene/7066	7066
Thpo ; mTHPO ; ANA670	thrombopoietin (mouse)	http://www.ncbi.nlm.nih.gov/gene/21832	21832
TLR5 ; hTLR5 ; ANA872	Toll-like receptor 5 (human)	https://www.ncbi.nlm.nih.gov/gene/7100	7100
TLR6 ; hTLR6 ; ANA867	Toll-like receptor 6 (human)	https://www.ncbi.nlm.nih.gov/gene/10333	10333
TLR7 ; hTLR7 ; ANA39	Toll-like receptor 7 (human)	https://www.ncbi.nlm.nih.gov/gene/51284	51284
TNFA ; hTNF ; ANA220	tumor necrosis factor (human)	http://www.ncbi.nlm.nih.gov/gene/7124	7124
Tnfa ; mTNF ; ANA671	tumor necrosis factor (mouse)	http://www.ncbi.nlm.nih.gov/gene/21926	21926
TNFB ; hLTA ; ANA192	lymphotoxin-alpha (human)	http://www.ncbi.nlm.nih.gov/gene/4049	4049
Tnfb ; mLTA ; ANA645	lymphotoxin-alpha (mouse)	http://www.ncbi.nlm.nih.gov/gene/16992	16992
TNFRSF10A ; hTNFRSF10A ; ANA221	tumor necrosis factor receptor superfamily member 10A (human)	http://www.ncbi.nlm.nih.gov/gene/8797	8797

TNFRSF10B ; hTNFRSF10B ; ANA222	tumor necrosis factor receptor superfamily member 10B (human)	http://www.ncbi.nlm.nih.gov/gene/8795	8795
Tnfrsf10b ; mTnfrsf10b ; ANA672	tumor necrosis factor receptor superfamily member 10B (mouse)	http://www.ncbi.nlm.nih.gov/gene/21933	21933
TNFRSF10C ; hTNFRSF10C ; ANA223	tumor necrosis factor receptor superfamily member 10C (human)	http://www.ncbi.nlm.nih.gov/gene/8794	8794
TNFRSF10D ; hTNFRSF10D ; ANA224	tumor necrosis factor receptor superfamily member 10D (human)	http://www.ncbi.nlm.nih.gov/gene/8793	8793
TNFRSF11A ; hTNFRSF11A ; ANA225	tumor necrosis factor receptor superfamily member 11A (human)	http://www.ncbi.nlm.nih.gov/gene/8792	8792
Tnfrsf11a ; mTNFRSF11A ; ANA673	tumor necrosis factor receptor superfamily member 11A (mouse)	http://www.ncbi.nlm.nih.gov/gene/21934	21934
Tnfrsf11b ; mTNFRSF11B ; ANA674	tumor necrosis factor receptor superfamily member 11B (mouse)	http://www.ncbi.nlm.nih.gov/gene/18383	18383
TNFRSF13B ; hTNFRSF13B ; ANA227	tumor necrosis factor receptor superfamily member 13B (human)	http://www.ncbi.nlm.nih.gov/gene/23495	23495
Tnfrsf13b ; mTNFRSF13B ; ANA675	tumor necrosis factor receptor superfamily member 13B (mouse)	http://www.ncbi.nlm.nih.gov/gene/57916	57916
TNFRSF14 ; hTNFRSF14 ; ANA228	tumor necrosis factor receptor superfamily member 14 (human)	http://www.ncbi.nlm.nih.gov/gene/8764	8764
Tnfrsf14 ; mTNFRSF14 ; ANA676	tumor necrosis factor receptor superfamily member 14 (mouse)	http://www.ncbi.nlm.nih.gov/gene/230979	230979
TNFRSF17 ; hTNFRSF17 ; ANA229	tumor necrosis factor receptor superfamily member 17 (human)	http://www.ncbi.nlm.nih.gov/gene/608	608

Tnfrsf17 ; mTNFRSF17 ; ANA677	tumor necrosis factor receptor superfamily member 17 (mouse)	http://www.ncbi.nlm.nih.gov/gene/21935	21935
TNFRSF18 ; hTNFRSF18 ; ANA230	tumor necrosis factor receptor superfamily member 18 (human)	http://www.ncbi.nlm.nih.gov/gene/8784	8784
Tnfrsf18 ; mTnfrsf18 ; ANA678	tumor necrosis factor receptor superfamily member 18 (mouse)	http://www.ncbi.nlm.nih.gov/gene/21936	21936
TNFRSF1A ; hTNFRSF1A ; ANA231	tumor necrosis factor receptor superfamily member 1A (human)	http://www.ncbi.nlm.nih.gov/gene/7132	7132
Tnfrsf1a ; mTNFRSF1A ; ANA679	tumor necrosis factor receptor superfamily member 1A (mouse)	http://www.ncbi.nlm.nih.gov/gene/21937	21937
TNFRSF1B ; hTNFRSF1B ; ANA232	tumor necrosis factor receptor superfamily member 1B (human)	http://www.ncbi.nlm.nih.gov/gene/7133	7133
Tnfrsf1b ; mTNFRSF1B ; ANA680	tumor necrosis factor receptor superfamily member 1B (mouse)	http://www.ncbi.nlm.nih.gov/gene/21938	21938
TNFRSF25 ; hTNFRSF25 ; ANA233	tumor necrosis factor receptor superfamily member 25 (human)	http://www.ncbi.nlm.nih.gov/gene/8718	8718
Tnfrsf25 ; TNFRSF25 ; ANA681	tumor necrosis factor receptor superfamily member 25	http://www.ncbi.nlm.nih.gov/gene/85030	85030
TNFRSF4 ; hTNFRSF4 ; ANA234	tumor necrosis factor receptor superfamily member 4 (human)	http://www.ncbi.nlm.nih.gov/gene/7293	7293
Tnfrsf4 ; mTNFRSF4 ; ANA682	tumor necrosis factor receptor superfamily member 4 (mouse)	http://www.ncbi.nlm.nih.gov/gene/22163	22163
TNFRSF8 ; hTNFRSF8 ; ANA235	tumor necrosis factor receptor superfamily member 8 (human)	http://www.ncbi.nlm.nih.gov/gene/943	943

Tnfrsf8 ; mTNFRSF8 ; ANA683	tumor necrosis factor receptor superfamily member 8 (mouse)	http://www.ncbi.nlm.nih.gov/gene/21941	21941
TNFRSF9 ; hTNFRSF9 ; ANA236	tumor necrosis factor receptor superfamily member 9 (human)	http://www.ncbi.nlm.nih.gov/gene/3604	3604
Tnfrsf9 ; mTNFRSF9 ; ANA684	tumor necrosis factor receptor superfamily member 9 (mouse)	http://www.ncbi.nlm.nih.gov/gene/21942	21942
Tnfsf10 ; mTNFSF10 ; ANA685	tumor necrosis factor ligand superfamily member 10 (mouse)	http://www.ncbi.nlm.nih.gov/gene/22035	22035
Tnfsf11 ; mTNFSF11 ; ANA686	tumor necrosis factor ligand superfamily member 11 (mouse)	http://www.ncbi.nlm.nih.gov/gene/21943	21943
TNFSF12 ; hTNFSF12 ; ANA239	tumor necrosis factor ligand superfamily member 12 (human)	http://www.ncbi.nlm.nih.gov/gene/8742	8742
Tnfsf12 ; mTNFSF12 ; ANA687	tumor necrosis factor ligand superfamily member 12 (mouse)	http://www.ncbi.nlm.nih.gov/gene/21944	21944
TNFSF13 ; hTNFSF13 ; ANA240	tumor necrosis factor ligand superfamily member 13 (human)	http://www.ncbi.nlm.nih.gov/gene/8741	8741
Tnfsf13 ; mTNFSF13 ; ANA688	tumor necrosis factor ligand superfamily member 13 (mouse)	http://www.ncbi.nlm.nih.gov/gene/69583	69583
Tnfsf13b ; mTNFSF13B ; ANA689	tumor necrosis factor ligand superfamily member 13B (mouse)	http://www.ncbi.nlm.nih.gov/gene/24099	24099
TNFSF14 ; hTNFSF14 ; ANA242	tumor necrosis factor ligand superfamily member 14 (human)	http://www.ncbi.nlm.nih.gov/gene/8740	8740

Tnfsf14 ; mTNFSF14 ; ANA690	tumor necrosis factor ligand superfamily member 14 (mouse)	http://www.ncbi.nlm.nih.gov/gene/50930	50930
TNFSF15 ; hTNFSF15 ; ANA243	tumor necrosis factor ligand superfamily member 15 (human)	http://www.ncbi.nlm.nih.gov/gene/9966	9966
Tnfsf15 ; mTNFSF15 ; ANA691	tumor necrosis factor ligand superfamily member 15 (mouse)	http://www.ncbi.nlm.nih.gov/gene/326623	326623
TNFSF18 ; hTNFSF18 ; ANA244	tumor necrosis factor ligand superfamily member 18 (human)	http://www.ncbi.nlm.nih.gov/gene/8995	8995
Tnfsf18 ; mTNFSF18 ; ANA692	tumor necrosis factor ligand superfamily member 18 (mouse)	http://www.ncbi.nlm.nih.gov/gene/240873	240873
TNFSF4 ; hTNFSF4 ; ANA245	tumor necrosis factor ligand superfamily member 4 (human)	http://www.ncbi.nlm.nih.gov/gene/7292	7292
Tnfsf4 ; mTNFSF4 ; ANA693	tumor necrosis factor ligand superfamily member 4 (mouse)	http://www.ncbi.nlm.nih.gov/gene/22164	22164
TNFSF8 ; hTNFSF8 ; ANA246	tumor necrosis factor ligand superfamily member 8 (human)	http://www.ncbi.nlm.nih.gov/gene/944	944
Tnfsf8 ; mTNFSF8 ; ANA694	tumor necrosis factor ligand superfamily member 8 (mouse)	http://www.ncbi.nlm.nih.gov/gene/21949	21949
TNFSF9 ; hTNFSF9 ; ANA247	tumor necrosis factor ligand superfamily member 9 (human)	http://www.ncbi.nlm.nih.gov/gene/8744	8744
Tnfsf9 ; mTNFSF9 ; ANA695	tumor necrosis factor ligand superfamily member 9 (mouse)	http://www.ncbi.nlm.nih.gov/gene/21950	21950
TRAIL ; hTNFSF10 ; ANA237	tumor necrosis factor ligand superfamily member 10 (human)	http://www.ncbi.nlm.nih.gov/gene/8743	8743

TSLP ; TSLP ; ANA716	TSLP (human)	http://www.ncbi.nlm.nih.gov/gene/85480	85480
VCAM1 ; VCAM1 ; ANA702	VCAM1 (human)	http://www.ncbi.nlm.nih.gov/gene/7412	7412
VEGFA ; VEGFA ; ANA709	VEGFA (human)	http://www.ncbi.nlm.nih.gov/gene/7422	7422
XCL1 ; hXCL1 ; ANA248	lymphotactin (human)	http://www.ncbi.nlm.nih.gov/gene/6375	6375
Xcl1 ; mXCL1 ; ANA696	lymphotactin (mouse)	http://www.ncbi.nlm.nih.gov/gene/16963	16963
XCL2 ; hXCL2 ; ANA249	cytokine SCM-1 beta (human)	http://www.ncbi.nlm.nih.gov/gene/6846	6846
XCR1 ; hXCR1 ; ANA250	chemokine XC receptor 1 (human)	http://www.ncbi.nlm.nih.gov/gene/2829	2829
Xcr1 ; mXCR1 ; ANA697	chemokine XC receptor 1 (mouse)	http://www.ncbi.nlm.nih.gov/gene/23832	23832

5. **lk_ancestral_population**

Name	Description	Link
Australia	Australia and all of its islands (for example, Groote Eylandt, Tasmania, etc).	http://www.allelefrequencies.net/datasets.asp#tag_4
Central Asia	Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Afghanistan	https://www.allelefrequencies.net/datasets.asp#tag_4

Europe	An area bounded by Franz Joseph Land, Svalbard, Iceland, the northern coast of the Mediterranean and Black Seas, and those areas of Russia west of the Caspian Sea and Kazakhstan. Includes Mediterranean islands that are part of European nations, with the exception of Cyprus and islands that are part of Turkey.	http://www.allelefrequencies.net/datasets.asp#tag_4
None of the Above	The population area is unknown.	http://www.allelefrequencies.net/datasets.asp#tag_4
North Africa	Nations on the African continent north of a line drawn between Nouadhibou in Mauritania and Djiubouti. Includes all of Western Sahara, Morocco, Algeria, Lyibia, Egypt, Eritrea, and Djibouti and northern areas of Mauritania, Mali, Niger, Chad, Sudan, and Ethiopia.	http://www.allelefrequencies.net/datasets.asp#tag_4
North America	Canada, the United States, Mexico, the Aleutian islands and Greenland.	http://www.allelefrequencies.net/datasets.asp#tag_4
North-East Asia	Russia north (and associated islands), Mongolia, China east and east of the Gulf of Chihli, the Korean peninsula, and the islands of Japan.	http://www.allelefrequencies.net/datasets.asp#tag_4
Oceania	An area of the Pacific bounded by the Hawaiian Islands, Easter Island, the islands of New Zealand, the Sunda Islands, Madagascar, those areas of Borneo not part of Malaysia, and the Phillipines.	http://www.allelefrequencies.net/datasets.asp#tag_4
Other	This category is for populations derived from more than one of the other regions defined here.	http://www.allelefrequencies.net/datasets.asp#tag_4
South America	All of the South American and the Central American nations and associated islands, and the Caribbean.	http://www.allelefrequencies.net/datasets.asp#tag_4
South Asia	Pakistan, India, Sri Lanka and Bangladesh.	https://www.allelefrequencies.net/datasets.asp#tag_4

South-East Asia	China West, Taiwan, Nepal, Bhutan, Vietnam, Myanmar (Burma), Laos, Cambodia, Thailand, Malaysia (including the Malaysian area of Borneo) and Singapore.	http://www.allelefrequencies.net/datasets.asp#tag_4
Sub-Saharan Africa	The area on the African continent south of the Sahara, defined by a line drawn between Nouadhibou in Mauritania and Djiubouti, and the islands associated with the nations of that area. Includes the southern areas of Mauritania, Mali, Niger, Chad, Sudan, and Ethiopia. Madagascar is not included in this region.	http://www.allelefrequencies.net/datasets.asp#tag_4
Unknown	A proper value is applicable, but not known.((HL7V3.0)	https://uts.nlm.nih.gov/uts/umls/concept/C0439673
Western Asia	Cyprus, Turkey (and associated islands), Georgia, Armenia, Azerbaijan, Syria, Lebanon, Israel, the Palestinian Territories, Jordan, the Saudi peninsula, Iraq, Kuwait and Iran.	http://www.allelefrequencies.net/datasets.asp#tag_4

6. **lk_animal_sex**

Name	Description
Female	Gender is Female.
Male	Gender is Male.
Other	Gender is Other. Value may be used to differeniate as neither Male or Female.
Unknown	Gender is Unknown. Value may be used to signify that gender is unknown at the time.

7. **lk_arm_type**

Name	Description	Link
type_preferred		
Active Comparator Arm	An arm describing the active comparator.	http://purl.obolibrary.org/obo/NCIT_C174267
Experimental Arm	An arm describing the intervention or treatment plan for a group of participants in the study receiving test product(s).	http://purl.obolibrary.org/obo/NCIT_C174266

Healthy Control	A healthy subject that is matched with an affected individual in a trial.	http://purl.obolibrary.org/obo/NCIT_C94342
Intervention	An activity that produces an effect, or that is intended to alter the course of a disease in a patient or population. This is a general term that encompasses the medical, social, behavioral, and environmental acts that can have preventive, therapeutic, or palliative effects.	http://purl.obolibrary.org/obo/NCIT_C25218
Negative Control	A control sample where a negative result is expected, to help correlate a positive result with the variable being tested.	http://purl.obolibrary.org/obo/NCIT_C64357
No Intervention Arm	A study arm without an intervention or treatment.	http://purl.obolibrary.org/obo/NCIT_C174270
Observational	Studies among cancer patients and healthy populations that involve no intervention or alteration in the status of the participants.	http://purl.obolibrary.org/obo/NCIT_C16084
Other	Other or unknown type of study arm	
Placebo Comparator Arm	An arm describing the placebo comparator.	http://purl.obolibrary.org/obo/NCIT_C174268
Positive Control	A control sample that is known to produce a positive result if the test is working as expected.	http://purl.obolibrary.org/obo/NCIT_C64356
Sham Comparator Arm	An arm describing the sham comparator.	http://purl.obolibrary.org/obo/NCIT_C174269
Treatment Arm	A specific treatment plan within a clinical trial that describes the activities a subject will be involved in as he or she progresses through the study.	http://purl.obolibrary.org/obo/NCIT_C15538
Vaccination	Administration of vaccines to stimulate the host's immune response. This includes any preparation intended for active immunological prophylaxis or treatment.	http://purl.obolibrary.org/obo/NCIT_C15346

8. **lk_arm_type_pref_mapping**

Name	Description

name_reported	name_preferred
Active Comparator	Active Comparator Arm
Arm	Treatment Arm
arm (protocol)	Treatment Arm
Experimental	Experimental Arm
Intervention or Procedure	Intervention
Intervention Strategies	Intervention
Interventional	Intervention
interventionDescription	Intervention
Investigational Arm	Experimental Arm
Negative_Control	Negative Control
No Intervention	No Intervention Arm
Observational Study	Observational
Observational Trial	Observational
Placebo Comparator	Placebo Comparator Arm
Placebo Control Arm	Placebo Comparator Arm
Planned Arm	Treatment Arm
Postive_Control	Positive Control
Procedure	Intervention
Protocol Arm	Treatment Arm
Protocol Treatment Arm	Treatment Arm
Sham Comparator	Sham Comparator Arm
Sham Intervention Arm	Sham Comparator Arm
study arm	Treatment Arm
study_arm	Treatment Arm
Treatment	Treatment Arm
treatment type	Intervention
TREATMENT_ARM	Treatment Arm
treatment_type	Intervention

9. **lk_cell_pop_statistic_unit**

Name	Description	Link
statistic_unit_preferred		
cells	cell count	http://purl.obolibrary.org/obo/NCIT_C48938
cells/ml	A unit of cell concentration expressed in cells per unit of volume equal to one milliliter.	http://purl.obolibrary.org/obo/NCIT_C74919

cells/ul	A unit of cell concentration expressed as a number of cells per unit volume equal to one microliter.	http://purl.obolibrary.org/obo/NCIT_C67242
Gy	A SI derived unit of absorbed radiation dose. One gray is equal to an absorbed dose of one joule per kilogram of matter, or to 100 rads.	https://uts.nlm.nih.gov/uts/umls/concept/C0556636
MFI at 90th percentile	Mean Fluorescence Intensity at 90th Percentile. MFI : A unit of measure equal to the geometric mean fluorescence intensity of a log-normal distribution of fluorescence signals.	http://purl.obolibrary.org/obo/NCIT_C96687
Not Specified	No value provided. Not stated explicitly or in detail.	http://purl.obolibrary.org/obo/NCIT_C38046
percentage	A fraction or ratio with 100 understood as the denominator. e.g. percentage of a cell population of interest within a parent population	http://purl.obolibrary.org/obo/NCIT_C25613
stim/unstim fold change	Fold change comparing stimulated vs unstimulated sample	https://en.wikipedia.org/wiki/Fold_change

10. **lk_cell_population**

Name	Description	Link
population_prefix_preferred ; population_name_preferred		

- ; basophil	Any of the immature or mature forms of a granular leukocyte that in its mature form has an irregularly shaped, pale-staining nucleus that is partially constricted into two lobes, and with cytoplasm that contains coarse, bluish-black granules of variable size. Basophils contain vasoactive amines such as histamine and serotonin, which are released on appropriate stimulation. A basophil is CD123-positive, CD193-positive, CD203c-positive, and FceRIa-positive.;Matures in the bone marrow and account for <1% of leukocytes in the peripheral blood, spleen, and bone marrow. Basophils are described as being CD11a-positive, CD11b-positive, CD13-positive, CD15-positive, CD18-positive, CD21-positive, CD25-positive, CD29-positive, CD35-positive, CD40-positive, CD40L-positive, CD44-positive, CD45R-negative, CD46-positive, CD49a-positive, CD49b-positive, CD49d-positive, CD55-positive, CD59-positive, CD62L-positive, CD63-positive, CD69-positive, CD90-negative, CD116-positive, CD117-negative, CD124-positive, CD125-positive, CD131-positive, CD161-positive, CD184-positive, CD191-positive, CD192-positive, CD197-positive, CD200R3-positive, CD218-positive, CD282-positive, CD284-positive, CD289-positive, CD290-positive, CD294-positive, natural killer cell receptor 2B4-positive, smad1-positive, CD3-negative, CD4-negative, CD7-negative, CD8-negative, CD14-negative, CD15-negative, CD16-negative, CD19-negative, CD20-negative, CD34-negative, CD36-negative, CD45R-negative, CD56-negative, CD57-negative, CD235a-negative, and GR1-negative. Transcription factors-GATA1-positive, PU.1-positive.	http://purl.obolibrary.org/obo/CL_0000767

- ; cell	A material entity of anatomical origin (part of or deriving from an organism) that has as its parts a maximally connected cell compartment surrounded by a plasma membrane.;The definition of cell is intended to represent all cells, and thus a cell is defined as a material entity and not an anatomical structure, which implies that it is part of an organism (or the entirety of one).	http://purl.obolibrary.org/obo/CL_0000000
- ; eosinophil	Any of the immature or mature forms of a granular leukocyte with a nucleus that usually has two lobes connected by one or more slender threads of chromatin, and cytoplasm containing coarse, round granules that are uniform in size and which can be stained by the dye eosin. Eosinophils are CD9-positive, CD191-positive, and CD193-positive.;Eosinophils are also CD14-negative, CD32-positive, CD44-positive, CD48-positive, CD69-positive, CD192-negative, MBP1-positive, MBP2-positive, TLR2-negative, TLR4-negative, and lineage-negative (B220, CD2, CD14, CD19, CD56, CD71, CD117, CD123, CD235a (glycophorin A), and TER119). The cytokines IL-3, IL-5, and GM-CSF are involved in their development and differentiation. Usually considered CD16-negative, CD16 is observed on eosinophilic metamyelocyte.	http://purl.obolibrary.org/obo/CL_0000771
- ; erythrocyte	A red blood cell. In mammals, mature erythrocytes are biconcave disks containing hemoglobin whose function is to transport oxygen.	http://purl.obolibrary.org/obo/CL_0000232
- ; granulocyte	A leukocyte with abundant granules in the cytoplasm.	http://purl.obolibrary.org/obo/CL_0000094
- ; hematopoietic stem cell	A stem cell from which all cells of the lymphoid and myeloid lineages develop, including blood cells and cells of the immune system. Hematopoietic stem cells lack cell markers of effector cells (lin-). Lin- is defined by lacking one or more of the following cell surface markers: CD2, CD3 epsilon, CD4, CD5 ,CD8 alpha chain, CD11b, CD14, CD19, CD20, CD56, ly6G, ter119.	http://purl.obolibrary.org/obo/CL_0000037

- ; innate lymphoid cell	A lymphocyte that lacks characteristic T cell, B cell, myeloid cell, and dendritic cell markers, that functions as part of the innate immune response to produce cytokines and other effector responses.	http://purl.obolibrary.org/obo/CL_0001065
- ; leukocyte	An achromatic cell of the myeloid or lymphoid lineages capable of ameboid movement, found in blood or other tissue.	http://purl.obolibrary.org/obo/CL_0000738
- ; leukocyte, platelet	An achromatic cell of the myeloid or lymphoid lineages capable of ameboid movement, found in blood or other tissue.;A non-nucleated disk-shaped cell formed by extrusion from megakaryocytes, found in the blood of all mammals, and mainly involved in blood coagulation.;Platelets are reportedly CCR1-positive, CCR2-negative, CCR3-positive, CCR4-positive, CCR5-negative, CCR6-negative, CCR7-negative, CCR8-negative, CCR9-negative, CCR10-negative, CD16-positive, CD23-positive, CD32-positive, CD40-positive, CD41-positive CD42-positive, CD61-positive, CD62P-positive, CD64-positive, CD89-positive, CD102-positive, CD147-positive (activated platelets), CD154-positive (activated platelets), CD162-positive, CD209, CD282-positive, CD284-positive, CD289-positive, CD181-negative, CD182-negative, CD183-negative, CD184-positive, CLEC2-positive, GPVI-positive, JAMC-positive, PAR1-positive, PAR2-negative, PAR3-positive, PAR4-positive, TSP1-positive, and TXA2R-positive. Platelets can reportedly produce CCL2, CCL3, CCL5, CCL7, CCL17, CD40L, CXCL1, CXCL4, CXCL4L1, CXCL5, CXCL7, CXCL8, CXCL12, EGF, factor V, factor VII, factor XI, factor XIII, bFGF, histamine, IGF-1, IL-1beta, PAI-1, PDGF, plasminogen, protein S, serotonin, TGF-beta, TFPI, VEGF, and vWF.	http://purl.obolibrary.org/obo/CL_0000738; http://purl.obolibrary.org/obo/CL_0000233
- ; Live/Dead	Viable cells	http://purl.obolibrary.org/obo/PATO_0000169

- ; lymphocyte	A lymphocyte is a leukocyte commonly found in the blood and lymph that has the characteristics of a large nucleus, a neutral staining cytoplasm, and prominent heterochromatin.;Editors note: consider adding taxon constraint to vertebrata (PMID:18025161)	http://purl.obolibrary.org/obo/CL_0000542
- ; mature neutrophil	A fully differentiated neutrophil, a granular leukocyte having a nucleus with three to five lobes connected by slender threads, and cytoplasm containing fine inconspicuous granules and stainable by neutral dyes. They are produced in bone marrow at a rate of 5e10-10e10/day and have a half-life of 6-8 hours. Neutrophils are CD15-positive, CD16-positive, CD32-positive, CD43-positive, CD181-positive, and CD182-positive.;Neutrophils are also capable of secreting GRO-alpha, IL-1beta, IL-1ra, IL-3, IL-12, IP-10, MIG, MIP-1alpha, MIP-1beta, TGF-beta, TNF-alpha, VEGF, and anti-microbial peptides. They can positively influence the chemotaxis of basophils, T-cells, monocytes, macrophages, dendritic cells, and other neutrophils. Neutrophils are also CD35-positive, CD64-positive, CD89-positive, CD184-positive, and fMLP receptor-positive Ly-6G-positive (mouse), TLR2-low, TLR4-low, and lineage-negative (CD2, CD3, CD5, CD9, CD19, CD36, CD49d, CD56, CD61, CD235a (glycophorin-A)).	http://purl.obolibrary.org/obo/CL_0000096
- ; neutrophil	Any of the immature or mature forms of a granular leukocyte that in its mature form has a nucleus with three to five lobes connected by slender threads of chromatin, and cytoplasm containing fine inconspicuous granules and stainable by neutral dyes.	http://purl.obolibrary.org/obo/CL_0000775
- ; PBMC	A leukocyte with a single non-segmented nucleus in the mature form found in the circulatory pool of blood.	http://purl.obolibrary.org/obo/CL_2000001

- ; platelet	A non-nucleated disk-shaped cell formed by extrusion from megakaryocytes, found in the blood of all mammals, and mainly involved in blood coagulation.;Platelets are reportedly CCR1-positive, CCR2-negative, CCR3-positive, CCR4-positive, CCR5-negative, CCR6-negative, CCR7-negative, CCR8-negative, CCR9-negative, CCR10-negative, CD16-positive, CD23-positive, CD32-positive, CD40-positive, CD41-positive CD42-positive, CD61-positive, CD62P-positive, CD64-positive, CD89-positive, CD102-positive, CD147-positive (activated platelets), CD154-positive (activated platelets), CD162-positive, CD209, CD282-positive, CD284-positive, CD289-positive, CD181-negative, CD182-negative, CD183-negative, CD184-positive, CLEC2-positive, GPVI-positive, JAMC-positive, PAR1-positive, PAR2-negative, PAR3-positive, PAR4-positive, TSP1-positive, and TXA2R-positive. Platelets can reportedly produce CCL2, CCL3, CCL5, CCL7, CCL17, CD40L, CXCL1, CXCL4, CXCL4L1, CXCL5, CXCL7, CXCL8, CXCL12, EGF, factor V, factor VII, factor XI, factor XIII, bFGF, histamine, IGF-1, IL-1beta, PAI-1, PDGF, plasminogen, protein S, serotonin, TGF-beta, TFPI, VEGF, and vWF.	http://purl.obolibrary.org/obo/CL_0000233
- ; reticulocyte	An immature erythrocyte that changes the protein composition of its plasma membrane by exosome formation and extrusion. The types of protein removed differ between species though removal of the transferrin receptor is apparent in mammals and birds.	http://purl.obolibrary.org/obo/CL_0000558
- ; Total Cells	NA	NA
B ; B cell	A lymphocyte of B lineage with the phenotype CD19-positive, CD20-positive, and capable of B cell mediated immunity.	http://purl.obolibrary.org/obo/CL_0000236

B ; class switched memory B cell	A class switched memory B cell is a memory B cell that has undergone Ig class switching and therefore is IgM-negative on the cell surface. These cells are CD27-positive and have either IgG, IgE, or IgA on the cell surface.;Per DSD: Class switched memory B cells are also reportedly CD48-positive, CD229-positive, and CD352-positive.	http://purl.obolibrary.org/obo/CL_0000972
B ; IgD+ memory B cell	An unswitched memory B cell is a memory B cell that has the phenotype IgM-positive, IgD-positive, CD27-positive, CD138-negative, IgG-negative, IgE-negative, and IgA-negative.	http://purl.obolibrary.org/obo/CL_0000970
B ; IgD- memory B cell	A memory B cell that lacks expression of surface IgD.	http://purl.obolibrary.org/obo/CL_0001053
B ; IgG memory B cell	An IgG memory B cell is a class switched memory B cell that is class switched and expresses IgG on the cell surface.	http://purl.obolibrary.org/obo/CL_0000979
B ; immature B cell	An immature B cell is a B cell that has the phenotype surface IgM-positive and surface IgD-negative, and have not undergone class immunoglobulin class switching or peripheral encounter with antigen and activation.;Immature B cells are also reportedly CD5-positive, CD10-positive, CD19-positive, CD20-positive, CD21-positive, CD22-positive, CD24-positive, CD25-negative, CD27-negative, CD34-negative, CD38-positive, CD40-positive, CD43-negative, CD45-positive, CD48-positive, CD53-positive, CD79a-positive, CD80-negative, CD81-positive, CD86-negative, CD95-negative, CD127-negative, CD138-negative, CD185-positive, CD196-positive, MHCII/HLA-DR-positive, RAG-positive, TdT-negative, Vpre-B-negative, and preBCR-negative. Transcription factors expressed: Pax5-positive.	http://purl.obolibrary.org/obo/CL_0000816

B ; marginal zone B cell	A mature B cell that is located in the marginal zone of the spleen with the phenotype CD23-negative and CD21-positive and expressing a B cell receptor usually reactive to bacterial cell wall components or senescent self components such as oxidized-LDL. This cell type is also described as being CD19-positive, B220-positive, IgM-high, AA4-negative, CD35-high.;MZ B cells are reportedly CD1-positive (mice), CD20-positive, CD48-positive, CD84-positive, CD150-positive, CD229-positive, and CD352-positive.	http://purl.obolibrary.org/obo/CL_0000845
B ; mature B cell	A B cell that is mature, having left the bone marrow. Initially, these cells are IgM-positive and IgD-positive, and they can be activated by antigen.;Mature B cells are also reportedly CD10-negative, CD19-positive, CD22-positive, CD34-negative, CD48-positive, CD79a-positive, CD84-positive, CD127-negative, CD352-positive, RAG-negative, TdT-negative, Vpre-B-negative, and pre-BCR-negative. Transcription factors expressed: Pax5-positive.	http://purl.obolibrary.org/obo/CL_0000785
B ; memory B cell	A memory B cell is a mature B cell that is long-lived, readily activated upon re-encounter of its antigenic determinant, and has been selected for expression of higher affinity immunoglobulin. This cell type has the phenotype CD19-positive, CD20-positive, MHC Class II-positive, and CD138-negative.	http://purl.obolibrary.org/obo/CL_0000787
B ; naive B cell	A naive B cell is a mature B cell that has the phenotype surface IgD-positive, surface IgM-positive, CD20-positive, CD27-negative and that has not yet been activated by antigen in the periphery.	http://purl.obolibrary.org/obo/CL_0000788

B ; plasma cell	A terminally differentiated, post-mitotic, antibody secreting cell of the B cell lineage with the phenotype CD138-positive, surface immunonoglobulin-negative, and MHC Class II-negative. Plasma cells are oval or round with extensive rough endoplasmic reticulum, a well-developed Golgi apparatus, and a round nucleus having a characteristic cartwheel heterochromatin pattern and are devoted to producing large amounts of immunoglobulin.;Plasma cells develop in the spleen and migrate to the bone marrow. Plasma cells are also reportedly CD5-negative, CD10-negative, CD19-positive, CD20-negative, CD21-negative, CD22-negative, CD23-negative, CD24-negative, CD25-negative, CD27-positive, CD34-negative, CD38-positive, CD40-positive, CD43-positive, CD45-positive, CD48-positive, CD53-low, CD80-negative, CD81-positive, CD86-positive, CD95-positive, CD196-negative, CD229-positive, CD270-positive, CD352-positive, CD361-positive, and IgD-negative. Transcription factors: BLIMP1-positive, IRF4-positive, PAX5-negative, SpiB-negative, Ets1-negative, and XBP1-positive.	http://purl.obolibrary.org/obo/CL_0000786
B ; plasmablast	An activated mature (naive or memory) B cell that is secreting immunoglobulin, typified by being CD27-positive, CD38-positive, CD138-negative.	http://purl.obolibrary.org/obo/CL_0000980
B ; T1 B cell	A transitional stage B cell that migrates from the bone marrow into the peripheral circulation, and finally to the spleen. This cell type has the phenotype surface IgM-positive, surface IgD-negative, CD21-negative, CD23-negative, and CD62L-negative, and CD93-positive. This cell type has also been described as IgM-high, CD19-positive, B220-positive, AA4-positive, and CD23-negative.;T1 B cells are also reportedly CD10-negative/positive??, CD20-positive, CD24-positive, CD38-positive, CD48-positive, CD84-positive, CD150-positive, CD244-negative, and CD352-positive.	http://purl.obolibrary.org/obo/CL_0000958

B ; T2 B cell	A transitional stage B cell that has the phenotype surface IgM-positive, surface IgD-postive, CD21-positive, CD23-positive, CD62L-negative, CD93-positive and is located in the splenic B follicles. This cell type has also been described as IgM-high, CD19-positive, B220-positive, AA4-positive, and CD23-positive.;T2 B cells are also reportedly CD20-positive, CD24-positive, CD38-positive, CD48-positive, CD84-positive, CD150-positive, CD244-negative, and CD352-positive.	http://purl.obolibrary.org/obo/CL_0000959
B ; transitional B cell	An immature B cell of an intermediate stage between the pre-B cell stage and the mature naive stage with the phenotype surface IgM-positive and CD19-positive, and are subject to the process of B cell selection. A transitional B cell migrates from the bone marrow into the peripheral circulation, and then to the spleen.	http://purl.obolibrary.org/obo/CL_0000818
B ; unswitched memory B cell	An unswitched memory B cell is a memory B cell that has the phenotype IgM+, IgD+, CD27+, CD138-, IgG-, IgE-, and IgA-.	http://purl.obolibrary.org/obo/CL_0000970
DC ; CD1c-positive myeloid dendritic cell	A myeloid dendritic cell found in the blood that is CD1c-positive.;Normally represent 10-20% of peripheral blood mDCs (human). They are also CD281-positive (TLR1), CD282-positive (TLR2), CD283-positive (TLR3), CD284-positive (TLR4), CD285-positive (TLR5), CD286-positive (TLR6), CD288-positive (TLR8), and CD290-positive (TLR10) [PMID:20204387]. Upon TLR stimulation, these cells were potent producers of CXCL8 (IL-8), while producing little TNF-alpha.	http://purl.obolibrary.org/obo/CL_0002399
DC ; conventional dendritic cell	Conventional dendritic cell is a dendritic cell that is CD11c-high.	http://purl.obolibrary.org/obo/CL_0000990
DC ; dendritic cell	A cell of hematopoietic origin, typically resident in particular tissues, specialized in the uptake, processing, and transport of antigens to lymph nodes for the purpose of stimulating an immune response via T cell activation. These cells are lineage negative (CD3-negative, CD19-negative, CD34-negative, and CD56-negative).	http://purl.obolibrary.org/obo/CL_0000451

DC ; myeloid dendritic cell	A dendritic cell of the myeloid lineage.	http://purl.obolibrary.org/obo/CL_0000782
DC ; plasmacytoid dendritic cell	A dendritic cell type of distinct morphology, localization, and surface marker expression (CD123-positive) from other dendritic cell types and associated with early stage immune responses, particularly the release of physiologically abundant amounts of type I interferons in response to infection.	http://purl.obolibrary.org/obo/CL_0000784
M ; CD14-positive monocyte	A monocyte that expresses CD14 and is negative for the lineage markers CD3, CD19, and CD20.;This cell type is compatible with the HIPC Lyoplate markers for 'monocyte'. Note that while CD14 is considered a reliable marker for human monocytes, it is only expressed on approximately 85% of mouse monocytes.	http://purl.obolibrary.org/obo/CL_0001054
M ; CD16+ monocyte	A CD14-positive monocyte that is also CD16-positive and CCR2-negative.	http://purl.obolibrary.org/obo/CL_0002397
M ; CD16- monocyte	A classical monocyte that is CD14-positive, CD16-negative, CD64-positive, CD163-positive.	http://purl.obolibrary.org/obo/CL_0002057
M ; monocyte	Myeloid mononuclear recirculating leukocyte that can act as a precursor of tissue macrophages, osteoclasts and some populations of tissue dendritic cells.	http://purl.obolibrary.org/obo/CL_0000576
NK ; CD16+ CD56+ NK cell	A mature natural killer cell that has the phenotype CD56-low, CD16-positive and which is capable of cytotoxicity and cytokine production.	http://purl.obolibrary.org/obo/CL_0000939
NK ; CD16- CD56bright NK cell	NK cell that has the phenotype CD56-bright, CD16-negative, and CD84-positive with the function to secrete interferon-gamma but is not cytotoxic.	http://purl.obolibrary.org/obo/CL_0000938
NK ; NK cell	A lymphocyte that can spontaneously kill a variety of target cells without prior antigenic activation via germline encoded activation receptors and also regulate immune responses via cytokine release and direct contact with other cells.	http://purl.obolibrary.org/obo/CL_0000623

T ; activated CCR4+ Treg	A CD4-positive, CD25-positive, CCR4-positive, alpha-beta T regulatory cell with the phenotype HLA-DRA-positive, indicating recent activation.	http://purl.obolibrary.org/obo/CL_0001048
T ; activated CD4+ T cell	A recently activated CD4-positive, alpha-beta T cell with the phenotype HLA-DRA-positive, CD38-positive, CD69-positive, CD62L-negative, CD127-negative, and CD25-positive.	http://purl.obolibrary.org/obo/CL_0001043
T ; activated CD4-positive, alpha-beta T cell	A recently activated CD4-positive, alpha-beta T cell with the phenotype CD69-positive, CD62L-negative, CD127-negative, and CD25-positive.	http://purl.obolibrary.org/obo/CL_0000896
T ; activated CD8+ T cell	A recently activated CD8-positive, alpha-beta T cell with the phenotype HLA-DRA-positive, CD38-positive, CD69-positive, CD62L-negative, CD127-negative, CCR7-negative, and CD25-positive.	http://purl.obolibrary.org/obo/CL_0001049
T ; activated CD8-positive, alpha-beta T cell	A CD8+, alpha-beta T cell with the phenotype CD69+, CD62L-, CD127-, CD25+, and CCR7-.	http://purl.obolibrary.org/obo/CL_0000906
T ; CCR4+ Treg	A naive regulatory T cell with the phenotype CD4-positive, CD25-positive, CD127lo, CCR4-positive, and CD45RO-negative.	http://purl.obolibrary.org/obo/CL_0001045
T ; CD4+ T cell	A mature alpha-beta T cell that expresses an alpha-beta T cell receptor and the CD4 coreceptor.	http://purl.obolibrary.org/obo/CL_0000624
T ; CD4-positive helper T cell	A CD4-positive, alpha-beta T cell that cooperates with other lymphocytes via direct contact or cytokine release to initiate a variety of immune functions.	http://purl.obolibrary.org/obo/CL_0000492
T ; CD4-positive type I NK T cell	A type I NK T cell that has the phenotype CD4+.	http://purl.obolibrary.org/obo/CL_0000923
T ; CD4-positive, alpha-beta T cell	A mature alpha-beta T cell that expresses an alpha-beta T cell receptor and the CD4 coreceptor.	http://purl.obolibrary.org/obo/CL_0000624
T ; CD4-positive, CD25-positive, alpha-beta regulatory T cell	A CD4+, CD25+, alpha-beta T cell that regulates overall immune responses as well as the responses of other T cell subsets through direct cell-cell contact and cytokine release.	http://purl.obolibrary.org/obo/CL_0000792
T ; CD8+ T cell	A T cell expressing an alpha-beta T cell receptor and the CD8 coreceptor.	http://purl.obolibrary.org/obo/CL_0000625

T ; central memory CD4+ T cell	CD4-positive, alpha-beta memory T cell with the phenotype CCR7-positive, CD127-positive, CD45RA-negative, CD45RO-positive, and CD25-negative.	http://purl.obolibrary.org/obo/CL_0000904
T ; central memory CD4-positive, alpha-beta T cell	CD4+, alpha-beta memory T cell with the phenotype CCR7+, CD127+, CD45RA-, CD45RO+, and CD25-.	http://purl.obolibrary.org/obo/CL_0000904
T ; central memory CD8+ T cell	CD8-positive, alpha-beta memory T cell with the phenotype CCR7-positive, CD127-positive, CD45RA-negative, CD45RO-positive, and CD25-negative.	http://purl.obolibrary.org/obo/CL_0000907
T ; central memory CD8-positive, alpha-beta T cell	CD8+, alpha-beta memory T cell with the phenotype CCR7+, CD127+, CD45RA-, CD45RO+, and CD25-.	http://purl.obolibrary.org/obo/CL_0000907
T ; effector CD4+ T cell	A CD4-positive, alpha-beta T cell with the phenotype CCR7-negative, CD45RA-positive.	http://purl.obolibrary.org/obo/CL_0001044
T ; effector CD8+ T cell	A CD8-positive, alpha-beta T cell with the phenotype CCR7-negative, CD45RA-positive.	http://purl.obolibrary.org/obo/CL_0001050
T ; effector CD8-positive, alpha-beta T cell	A CD8+, alpha-beta T cell with the phenotype CCR7-, CD45RA+.	http://purl.obolibrary.org/obo/CL_0001050
T ; effector memory CD4+ T cell	CD4-positive, alpha-beta memory T cell with the phenotype CCR7-negative, CD127-positive, CD45RA-negative, CD45RO-positive, and CD25-negative.	http://purl.obolibrary.org/obo/CL_0000905
T ; effector memory CD4-positive, alpha-beta T cell	CD4+, alpha-beta memory T cell with the phenotype CCR7-, CD127+, CD45RA-, CD45RO+, and CD25-.	http://purl.obolibrary.org/obo/CL_0000905
T ; effector memory CD4-positive, alpha-beta T cell, terminally differentiated	A CD4+, alpha beta memory T cell with the phenotype CD45RA+, CD45RO-, and CCR7-.	http://purl.obolibrary.org/obo/CL_0001087
T ; effector memory CD8+ T cell	CD8-positive, alpha-beta memory T cell with the phenotype CCR7-negative, CD127-positive, CD45RA-negative, CD45RO-positive, and CD25-negative.	http://purl.obolibrary.org/obo/CL_0000913
T ; effector memory CD8-positive, alpha-beta T cell, terminally differentiated	A CD8+, alpha beta memory T cell with the phenotype CD45RA+, CD45RO-, and CCR7-.	http://purl.obolibrary.org/obo/CL_0001062

T ; gamma-delta T cell	A T cell that expresses a gamma-delta T cell receptor complex.;Note that gamma-delta T cells have both thymic and extrathymic differentiation pathways.	http://purl.obolibrary.org/obo/CL_0000798
T ; helper T cell	A effector T cell that provides help in the form of secreted cytokines to other immune cells.	http://purl.obolibrary.org/obo/CL_0000912
T ; memory CCR4+ Treg	A memory regulatory T cell with phenotype CD4-positive, CD25-positive, CD127lo, CCR4-positive, and CD45RO-positive.	http://purl.obolibrary.org/obo/CL_0001046
T ; mucosal invariant T cell	An alpha-beta T cell that is found in the lamina propria of mucosal tissues and is restricted by the MR-1 molecule.	http://purl.obolibrary.org/obo/CL_0000940
T ; naive CCR4+ Treg	A naive regulatory T cell with the phenotype CD4-positive, CD25-positive, CD127lo, CCR4-positive, and CD45RO-negative.	http://purl.obolibrary.org/obo/CL_0001045
T ; naive CD4+ T cell	An antigen inexperienced CD4-positive, alpha-beta T cell with the phenotype CCR7-positive, CD127-positive and CD62L-positive. This cell type develops in the thymus. This cell type is also described as being CD25-negative, CD62L-high, and CD44-low.	http://purl.obolibrary.org/obo/CL_0000895
T ; naive CD8+ T cell	A CD8-positive, alpha-beta T cell that has not experienced activation via antigen contact and has the phenotype CD45RA-positive, CCR7-positive and CD127-positive. This cell type is also described as being CD25-negative, CD62L-high and CD44-low.	http://purl.obolibrary.org/obo/CL_0000900
T ; naive regulatory T cell	A regulatory T cell that has not encountered antigen.	http://purl.obolibrary.org/obo/CL_0002677
T ; naive T cell	Mature T cell not yet exposed to antigen with the phenotype CCR7-positive, CD45RA-positive, and CD127-positive. This cell type is also described as being CD25-negative, CD62L-high and CD44-low.	http://purl.obolibrary.org/obo/CL_0000898
T ; naive thymus-derived CD4-positive, alpha-beta T cell	An antigen inexperienced CD4+, alpha-beta T cell with the phenotype CCR7+, CD127+ and CD62L+. This cell type develops in the thymus. This cell type is also described as being CD25-, CD62L-high, and CD44-low.	http://purl.obolibrary.org/obo/CL_0000895

T ; naive thymus-derived CD8-positive, alpha-beta T cell	A CD8+, alpha-beta T cell that has not experienced activation via antigen contact and has the phenotype CD45RA+, CCR7+ and CD127+. This cell type is also described as being CD25-, CD62L-high and CD44-low.	http://purl.obolibrary.org/obo/CL_0000900
T ; NK T cell	A mature alpha-beta T cell of a distinct lineage that bears natural killer markers and a T cell receptor specific for a limited set of ligands. NK T cells have activation and regulatory roles particularly early in an immune response.	http://purl.obolibrary.org/obo/CL_0000814
T ; non-Tc1/Tc17 CD8+ T cell	A CD8-positive, alpha-beta T cell that has the phenotype CXCR3-negative, CCR6-negative.;A CD8-positive, alpha-beta positive T cell expressing GATA-3 and secreting IL-4.	http://purl.obolibrary.org/obo/CL_0001052; http://purl.obolibrary.org/obo/CL_0000918
T ; non-Th1/Th17 CD4+ T cell	A CD4-positive, alpha-beta T cell that has the phenotype GATA-3-positive, CXCR3-negative, CCR6-negative, and is capable of producing interleukin-4.	http://purl.obolibrary.org/obo/CL_0000546
T ; regulatory T cell	A T cell which regulates overall immune responses as well as the responses of other T cell subsets through direct cell-cell contact and cytokine release.;This cell type may express FoxP3 and CD25 and secretes IL-10 and TGF-beta.	http://purl.obolibrary.org/obo/CL_0000815
T ; T cell	A type of lymphocyte whose defining characteristic is the expression of a T cell receptor complex.	http://purl.obolibrary.org/obo/CL_0000084
T ; T follicular helper cell	A CD4-positive, CXCR5-positive, CCR7-negative alpha-beta T cell located in follicles of secondary lymph nodes that expresses is BCL6-high, ICOS-high and PD1-high, and stimulates follicular B cells to undergo class-switching and antibody production.	http://purl.obolibrary.org/obo/CL_0002038
T ; Tc1 CD8+ T cell	A CD8-positive, alpha-beta positive T cell that has the phenotype T-bet-positive, eomesodermin-positive, CXCR3-positive, CCR6-negative, and is capable of producing interferon-gamma.	http://purl.obolibrary.org/obo/CL_0000917

T ; Tc17 CD8+ T cell	A CD8-positive, alpha-beta T cell that has the phenotype CXCR3-negative, CCR6-positive, CCR5-high, CD45RA-negative, and capable of producing IL-17 and some IFNg.	http://purl.obolibrary.org/obo/CL_0002128
T ; Th1 CD4+ T cell	A CD4-positive, alpha-beta T cell that has the phenotype T-bet-positive, CXCR3-positive, CCR6-negative, and is capable of producing interferon-gamma.	http://purl.obolibrary.org/obo/CL_0000545
T ; Th17 CD4+ T cell	CD4-positive, alpha-beta T cell with the phenotype RORgamma-t-positive, CXCR3-negative, CCR6-positive, and capable of producing IL-17.	http://purl.obolibrary.org/obo/CL_0000899
T ; Treg	A CD4-positive, CD25-positive, alpha-beta T cell that regulates overall immune responses as well as the responses of other T cell subsets through direct cell-cell contact and cytokine release.	http://purl.obolibrary.org/obo/CL_0000792

11. **lk_cell_population_definition**

Name	Description	Link
population_defnition_preferred		
A leukocyte with a single non-segmented nucleus in the mature form found in the circulatory pool of blood.	A leukocyte with a single non-segmented nucleus in the mature form found in the circulatory pool of blood.	http://purl.obolibrary.org/obo/CL_2000001
A lymphocyte that lacks characteristic T cell, B cell, myeloid cell, and dendritic cell markers, that functions as part of the innate immune response to produce cytokines and other effector responses.	A lymphocyte that lacks characteristic T cell, B cell, myeloid cell, and dendritic cell markers, that functions as part of the innate immune response to produce cytokines and other effector responses.	http://purl.obolibrary.org/obo/CL_0001065
A mature alpha-beta T cell that expresses an alpha-beta T cell receptor and the CD4 coreceptor.	A mature alpha-beta T cell that expresses an alpha-beta T cell receptor and the CD4 coreceptor.	http://purl.obolibrary.org/obo/CL_0000624
A red blood cell. In mammals, mature erythrocytes are biconcave disks containing hemoglobin whose function is to transport oxygen.	A red blood cell. In mammals, mature erythrocytes are biconcave disks containing hemoglobin whose function is to transport oxygen.	http://purl.obolibrary.org/obo/CL_0000232
A regulatory T cell that has not encountered antigen.	A regulatory T cell that has not encountered antigen.	http://purl.obolibrary.org/obo/CL_0002677

A stem cell from which all cells of the lymphoid and myeloid lineages develop, including blood cells and cells of the immune system. Hematopoietic stem cells lack cell markers of effector cells (lin-). Lin- is defined by lacking one or more of the following cell surface markers: CD2, CD3 epsilon, CD4, CD5 ,CD8 alpha chain, CD11b, CD14, CD19, CD20, CD56, ly6G, ter119.	A stem cell from which all cells of the lymphoid and myeloid lineages develop, including blood cells and cells of the immune system. Hematopoietic stem cells lack cell markers of effector cells (lin-). Lin- is defined by lacking one or more of the following cell surface markers: CD2, CD3 epsilon, CD4, CD5 ,CD8 alpha chain, CD11b, CD14, CD19, CD20, CD56, ly6G, ter119.	http://purl.obolibrary.org/obo/CL_0000037
A type I NK T cell that has the phenotype CD4+.	A type I NK T cell that has the phenotype CD4+.	http://purl.obolibrary.org/obo/CL_0000923
All cells in a sample	NA	NA
An alpha-beta T cell that is found in the lamina propria of mucosal tissues and is restricted by the MR-1 molecule.	An alpha-beta T cell that is found in the lamina propria of mucosal tissues and is restricted by the MR-1 molecule.	http://purl.obolibrary.org/obo/CL_0000940
An unswitched memory B cell is a memory B cell that has the phenotype IgM+, IgD+, CD27+, CD138-, IgG-, IgE-, and IgA-.	An unswitched memory B cell is a memory B cell that has the phenotype IgM+, IgD+, CD27+, CD138-, IgG-, IgE-, and IgA-.	http://purl.obolibrary.org/obo/CL_0000970

CCR1+, CCR2-, CCR3+, CCR4+, CCR5-, CCR6-, CCR7-, CCR8-, CCR9-, CCR10-, CD16+, CD23+, CD32+, CD40+, CD41+ CD42+, CD61+, CD62P+, CD64+, CD89+, CD102+, CD147+, CD154+, CD162+, CD209, CD282+, CD284+, CD289+, CD181-, CD182-, CD183-, CD184+, CLEC2+, GPVI+, JAMC+, PAR1+, PAR2-, PAR3+, PAR4+, TSP1+, and TXA2R+	An achromatic cell of the myeloid or lymphoid lineages capable of ameboid movement, found in blood or other tissue.;A non-nucleated disk-shaped cell formed by extrusion from megakaryocytes, found in the blood of all mammals, and mainly involved in blood coagulation.;Platelets are reportedly CCR1-positive, CCR2-negative, CCR3-positive, CCR4-positive, CCR5-negative, CCR6-negative, CCR7-negative, CCR8-negative, CCR9-negative, CCR10-negative, CD16-positive, CD23-positive, CD32-positive, CD40-positive, CD41-positive CD42-positive, CD61-positive, CD62P-positive, CD64-positive, CD89-positive, CD102-positive, CD147-positive (activated platelets), CD154-positive (activated platelets), CD162-positive, CD209, CD282-positive, CD284-positive, CD289-positive, CD181-negative, CD182-negative, CD183-negative, CD184-positive, CLEC2-positive, GPVI-positive, JAMC-positive, PAR1-positive, PAR2-negative, PAR3-positive, PAR4-positive, TSP1-positive, and TXA2R-positive. Platelets can reportedly produce CCL2, CCL3, CCL5, CCL7, CCL17, CD40L, CXCL1, CXCL4, CXCL4L1, CXCL5, CXCL7, CXCL8, CXCL12, EGF, factor V, factor VII, factor XI, factor XIII, bFGF, histamine, IGF-1, IL-1beta, PAI-1, PDGF, plasminogen, protein S, serotonin, TGF-beta, TFPI, VEGF, and vWF.	http://purl.obolibrary.org/obo/CL_0000738; http://purl.obolibrary.org/obo/CL_0000233

CCR1+, CCR2-, CCR3+, CCR4+, CCR5-, CCR6-, CCR7-, CCR8-, CCR9-, CCR10-, CD16+, CD23+, CD32+, CD40+, CD41+ CD42+, CD61+, CD62P+, CD64+, CD89+, CD102+, CD147+, CD154+, CD162+, CD209, CD282+, CD284+, CD289+, CD181-, CD182-, CD183-, CD184+, CLEC2+, GPVI+, JAMC+, PAR1+, PAR2-, PAR3+, PAR4+, TSP1+, TXA2R+	A non-nucleated disk-shaped cell formed by extrusion from megakaryocytes, found in the blood of all mammals, and mainly involved in blood coagulation.;Platelets are reportedly CCR1-positive, CCR2-negative, CCR3-positive, CCR4-positive, CCR5-negative, CCR6-negative, CCR7-negative, CCR8-negative, CCR9-negative, CCR10-negative, CD16-positive, CD23-positive, CD32-positive, CD40-positive, CD41-positive CD42-positive, CD61-positive, CD62P-positive, CD64-positive, CD89-positive, CD102-positive, CD147-positive (activated platelets), CD154-positive (activated platelets), CD162-positive, CD209, CD282-positive, CD284-positive, CD289-positive, CD181-negative, CD182-negative, CD183-negative, CD184-positive, CLEC2-positive, GPVI-positive, JAMC-positive, PAR1-positive, PAR2-negative, PAR3-positive, PAR4-positive, TSP1-positive, and TXA2R-positive. Platelets can reportedly produce CCL2, CCL3, CCL5, CCL7, CCL17, CD40L, CXCL1, CXCL4, CXCL4L1, CXCL5, CXCL7, CXCL8, CXCL12, EGF, factor V, factor VII, factor XI, factor XIII, bFGF, histamine, IGF-1, IL-1beta, PAI-1, PDGF, plasminogen, protein S, serotonin, TGF-beta, TFPI, VEGF, and vWF.	http://purl.obolibrary.org/obo/CL_0000233
CCR7+, CD45RA+, CD127+, CD25-, CD62Lhi, and CD44lo	Mature T cell not yet exposed to antigen with the phenotype CCR7-positive, CD45RA-positive, and CD127-positive. This cell type is also described as being CD25-negative, CD62L-high and CD44-low.	http://purl.obolibrary.org/obo/CL_0000898
CD10-, CD19+, CD22+, CD34-, CD48+, CD79a+, CD84+, CD127-, CD352+, RAG-, TdT-, Vpre-B-, pre-BCR-	A B cell that is mature, having left the bone marrow. Initially, these cells are IgM-positive and IgD-positive, and they can be activated by antigen.;Mature B cells are also reportedly CD10-negative, CD19-positive, CD22-positive, CD34-negative, CD48-positive, CD79a-positive, CD84-positive, CD127-negative, CD352-positive, RAG-negative, TdT-negative, Vpre-B-negative, and pre-BCR-negative. Transcription factors expressed: Pax5-positive.	http://purl.obolibrary.org/obo/CL_0000785

CD11chi	Conventional dendritic cell is a dendritic cell that is CD11c-high.	http://purl.obolibrary.org/obo/CL_0000990
CD123+, CD193+, CD203c+, FceRIa+	Any of the immature or mature forms of a granular leukocyte that in its mature form has an irregularly shaped, pale-staining nucleus that is partially constricted into two lobes, and with cytoplasm that contains coarse, bluish-black granules of variable size. Basophils contain vasoactive amines such as histamine and serotonin, which are released on appropriate stimulation. A basophil is CD123-positive, CD193-positive, CD203c-positive, and FceRIa-positive.;Matures in the bone marrow and account for <1% of leukocytes in the peripheral blood, spleen, and bone marrow. Basophils are described as being CD11a-positive, CD11b-positive, CD13-positive, CD15-positive, CD18-positive, CD21-positive, CD25-positive, CD29-positive, CD35-positive, CD40-positive, CD40L-positive, CD44-positive, CD45R-negative, CD46-positive, CD49a-positive, CD49b-positive, CD49d-positive, CD55-positive, CD59-positive, CD62L-positive, CD63-positive, CD69-positive, CD90-negative, CD116-positive, CD117-negative, CD124-positive, CD125-positive, CD131-positive, CD161-positive, CD184-positive, CD191-positive, CD192-positive, CD197-positive, CD200R3-positive, CD218-positive, CD282-positive, CD284-positive, CD289-positive, CD290-positive, CD294-positive, natural killer cell receptor 2B4-positive, smad1-positive, CD3-negative, CD4-negative, CD7-negative, CD8-negative, CD14-negative, CD15-negative, CD16-negative, CD19-negative, CD20-negative, CD34-negative, CD36-negative, CD45R-negative, CD56-negative, CD57-negative, CD235a-negative, and GR1-negative. Transcription factors-GATA1-positive, PU.1-positive.	http://purl.obolibrary.org/obo/CL_0000767

CD138+, CD5-, CD10-, CD19+, CD20-, CD21-, CD22-, CD23-, CD24-, CD25-, CD27+, CD34-, CD38+, CD40+, CD43+, CD45+, CD48+, CD53lo, CD80-, CD81+, CD86+, CD95+, CD196-, CD229+, CD270+, CD352+, CD361+, and IgD-	A terminally differentiated, post-mitotic, antibody secreting cell of the B cell lineage with the phenotype CD138-positive, surface immunonoglobulin-negative, and MHC Class II-negative. Plasma cells are oval or round with extensive rough endoplasmic reticulum, a well-developed Golgi apparatus, and a round nucleus having a characteristic cartwheel heterochromatin pattern and are devoted to producing large amounts of immunoglobulin.;Plasma cells develop in the spleen and migrate to the bone marrow. Plasma cells are also reportedly CD5-negative, CD10-negative, CD19-positive, CD20-negative, CD21-negative, CD22-negative, CD23-negative, CD24-negative, CD25-negative, CD27-positive, CD34-negative, CD38-positive, CD40-positive, CD43-positive, CD45-positive, CD48-positive, CD53-low, CD80-negative, CD81-positive, CD86-positive, CD95-positive, CD196-negative, CD229-positive, CD270-positive, CD352-positive, CD361-positive, and IgD-negative. Transcription factors: BLIMP1-positive, IRF4-positive, PAX5-negative, SpiB-negative, Ets1-negative, and XBP1-positive.	http://purl.obolibrary.org/obo/CL_0000786
CD14+	A monocyte that expresses CD14 and is negative for the lineage markers CD3, CD19, and CD20.;This cell type is compatible with the HIPC Lyoplate markers for 'monocyte'. Note that while CD14 is considered a reliable marker for human monocytes, it is only expressed on approximately 85% of mouse monocytes.	http://purl.obolibrary.org/obo/CL_0001054

CD15+, CD16+, CD32+, CD43+, CD181+, CD182+	A fully differentiated neutrophil, a granular leukocyte having a nucleus with three to five lobes connected by slender threads, and cytoplasm containing fine inconspicuous granules and stainable by neutral dyes. They are produced in bone marrow at a rate of 5e10-10e10/day and have a half-life of 6-8 hours. Neutrophils are CD15-positive, CD16-positive, CD32-positive, CD43-positive, CD181-positive, and CD182-positive.;Neutrophils are also capable of secreting GRO-alpha, IL-1beta, IL-1ra, IL-3, IL-12, IP-10, MIG, MIP-1alpha, MIP-1beta, TGF-beta, TNF-alpha, VEGF, and anti-microbial peptides. They can positively influence the chemotaxis of basophils, T-cells, monocytes, macrophages, dendritic cells, and other neutrophils. Neutrophils are also CD35-positive, CD64-positive, CD89-positive, CD184-positive, and fMLP receptor-positive Ly-6G-positive (mouse), TLR2-low, TLR4-low, and lineage-negative (CD2, CD3, CD5, CD9, CD19, CD36, CD49d, CD56, CD61, CD235a (glycophorin-A)).	http://purl.obolibrary.org/obo/CL_0000096
CD1c+, CD281+, CD282+, CD283+, CD284+, CD285+, CD286+, CD288+, CD290+	A myeloid dendritic cell found in the blood that is CD1c-positive.;Normally represent 10-20% of peripheral blood mDCs (human). They are also CD281-positive (TLR1), CD282-positive (TLR2), CD283-positive (TLR3), CD284-positive (TLR4), CD285-positive (TLR5), CD286-positive (TLR6), CD288-positive (TLR8), and CD290-positive (TLR10) [PMID:20204387]. Upon TLR stimulation, these cells were potent producers of CXCL8 (IL-8), while producing little TNF-alpha.	http://purl.obolibrary.org/obo/CL_0002399

CD23-, CD21+, CD19+, B220+, IgM-hi, AA4-, CD35-hi	A mature B cell that is located in the marginal zone of the spleen with the phenotype CD23-negative and CD21-positive and expressing a B cell receptor usually reactive to bacterial cell wall components or senescent self components such as oxidized-LDL. This cell type is also described as being CD19-positive, B220-positive, IgM-high, AA4-negative, CD35-high.;MZ B cells are reportedly CD1-positive (mice), CD20-positive, CD48-positive, CD84-positive, CD150-positive, CD229-positive, and CD352-positive.	http://purl.obolibrary.org/obo/CL_0000845
CD27+, CD48+, CD229+, CD352+	A class switched memory B cell is a memory B cell that has undergone Ig class switching and therefore is IgM-negative on the cell surface. These cells are CD27-positive and have either IgG, IgE, or IgA on the cell surface.;Per DSD: Class switched memory B cells are also reportedly CD48-positive, CD229-positive, and CD352-positive.	http://purl.obolibrary.org/obo/CL_0000972
CD3+	A type of lymphocyte whose defining characteristic is the expression of a T cell receptor complex.	http://purl.obolibrary.org/obo/CL_0000084
CD3+, CD4+	A mature alpha-beta T cell that expresses an alpha-beta T cell receptor and the CD4 coreceptor.	http://purl.obolibrary.org/obo/CL_0000624
CD3+, CD4+, CD127lo, CD25+	A CD4-positive, CD25-positive, alpha-beta T cell that regulates overall immune responses as well as the responses of other T cell subsets through direct cell-cell contact and cytokine release.	http://purl.obolibrary.org/obo/CL_0000792
CD3+, CD4+, CD127lo, CD25+, CCR4+	A naive regulatory T cell with the phenotype CD4-positive, CD25-positive, CD127lo, CCR4-positive, and CD45RO-negative.	http://purl.obolibrary.org/obo/CL_0001045
CD3+, CD4+, CD127lo, CD25+, CCR4+, CD45RO+	A memory regulatory T cell with phenotype CD4-positive, CD25-positive, CD127lo, CCR4-positive, and CD45RO-positive.	http://purl.obolibrary.org/obo/CL_0001046
CD3+, CD4+, CD127lo, CD25+, CCR4+, CD45RO-	A naive regulatory T cell with the phenotype CD4-positive, CD25-positive, CD127lo, CCR4-positive, and CD45RO-negative.	http://purl.obolibrary.org/obo/CL_0001045
CD3+, CD4+, CD127lo, CD25+, CCR4+, HLA-DR+	A CD4-positive, CD25-positive, CCR4-positive, alpha-beta T regulatory cell with the phenotype HLA-DRA-positive, indicating recent activation.	http://purl.obolibrary.org/obo/CL_0001048

CD3+, CD4+, CD8-, CCR7+, CD45RA+	An antigen inexperienced CD4-positive, alpha-beta T cell with the phenotype CCR7-positive, CD127-positive and CD62L-positive. This cell type develops in the thymus. This cell type is also described as being CD25-negative, CD62L-high, and CD44-low.	http://purl.obolibrary.org/obo/CL_0000895
CD3+, CD4+, CD8-, CCR7+, CD45RA-	CD4-positive, alpha-beta memory T cell with the phenotype CCR7-positive, CD127-positive, CD45RA-negative, CD45RO-positive, and CD25-negative.	http://purl.obolibrary.org/obo/CL_0000904
CD3+, CD4+, CD8-, CCR7-, CD45RA+	A CD4-positive, alpha-beta T cell with the phenotype CCR7-negative, CD45RA-positive.	http://purl.obolibrary.org/obo/CL_0001044
CD3+, CD4+, CD8-, CCR7-, CD45RA-	CD4-positive, alpha-beta memory T cell with the phenotype CCR7-negative, CD127-positive, CD45RA-negative, CD45RO-positive, and CD25-negative.	http://purl.obolibrary.org/obo/CL_0000905
CD3+, CD4+, CD8-, CD38+, HLA-DR+	A recently activated CD4-positive, alpha-beta T cell with the phenotype HLA-DRA-positive, CD38-positive, CD69-positive, CD62L-negative, CD127-negative, and CD25-positive.	http://purl.obolibrary.org/obo/CL_0001043
CD3+, CD4+, CD8-, CXCR3+, CCR6-	A CD4-positive, alpha-beta T cell that has the phenotype T-bet-positive, CXCR3-positive, CCR6-negative, and is capable of producing interferon-gamma.	http://purl.obolibrary.org/obo/CL_0000545
CD3+, CD4+, CD8-, CXCR3-, CCR6+	CD4-positive, alpha-beta T cell with the phenotype RORgamma-t-positive, CXCR3-negative, CCR6-positive, and capable of producing IL-17.	http://purl.obolibrary.org/obo/CL_0000899
CD3+, CD4+, CD8-, CXCR3-, CCR6-	A CD4-positive, alpha-beta T cell that has the phenotype GATA-3-positive, CXCR3-negative, CCR6-negative, and is capable of producing interleukin-4.	http://purl.obolibrary.org/obo/CL_0000546
CD3+, CD4-, CD8+, CCR7+, CD45RA+	A CD8-positive, alpha-beta T cell that has not experienced activation via antigen contact and has the phenotype CD45RA-positive, CCR7-positive and CD127-positive. This cell type is also described as being CD25-negative, CD62L-high and CD44-low.	http://purl.obolibrary.org/obo/CL_0000900
CD3+, CD4-, CD8+, CCR7+, CD45RA-	CD8-positive, alpha-beta memory T cell with the phenotype CCR7-positive, CD127-positive, CD45RA-negative, CD45RO-positive, and CD25-negative.	http://purl.obolibrary.org/obo/CL_0000907

CD3+, CD4-, CD8+, CCR7-, CD45RA+	A CD8-positive, alpha-beta T cell with the phenotype CCR7-negative, CD45RA-positive.	http://purl.obolibrary.org/obo/CL_0001050
CD3+, CD4-, CD8+, CCR7-, CD45RA-	CD8-positive, alpha-beta memory T cell with the phenotype CCR7-negative, CD127-positive, CD45RA-negative, CD45RO-positive, and CD25-negative.	http://purl.obolibrary.org/obo/CL_0000913
CD3+, CD4-, CD8+, CD38+, HLA-DR+	A recently activated CD8-positive, alpha-beta T cell with the phenotype HLA-DRA-positive, CD38-positive, CD69-positive, CD62L-negative, CD127-negative, CCR7-negative, and CD25-positive.	http://purl.obolibrary.org/obo/CL_0001049
CD3+, CD4-, CD8+, CXCR3+, CCR6-	A CD8-positive, alpha-beta positive T cell that has the phenotype T-bet-positive, eomesodermin-positive, CXCR3-positive, CCR6-negative, and is capable of producing interferon-gamma.	http://purl.obolibrary.org/obo/CL_0000917
CD3+, CD4-, CD8+, CXCR3-, CCR6+	A CD8-positive, alpha-beta T cell that has the phenotype CXCR3-negative, CCR6-positive, CCR5-high, CD45RA-negative, and capable of producing IL-17 and some IFNg.	http://purl.obolibrary.org/obo/CL_0002128
CD3+, CD4-, CD8+, CXCR3-, CCR6-	A CD8-positive, alpha-beta T cell that has the phenotype CXCR3-negative, CCR6-negative.;A CD8-positive, alpha-beta positive T cell expressing GATA-3 and secreting IL-4.	http://purl.obolibrary.org/obo/CL_0001052; http://purl.obolibrary.org/obo/CL_0000918
CD3+, CD56+, CD14-, CD33-	A mature alpha-beta T cell of a distinct lineage that bears natural killer markers and a T cell receptor specific for a limited set of ligands. NK T cells have activation and regulatory roles particularly early in an immune response.	http://purl.obolibrary.org/obo/CL_0000814
CD3+, CD8+	A T cell expressing an alpha-beta T cell receptor and the CD8 coreceptor.	http://purl.obolibrary.org/obo/CL_0000625
CD3-, CD19+ , CD20+	A lymphocyte of B lineage with the phenotype CD19-positive, CD20-positive, and capable of B cell mediated immunity.	http://purl.obolibrary.org/obo/CL_0000236

CD3-, CD19+, CD20+, CD24hi, CD38hi	An immature B cell of an intermediate stage between the pre-B cell stage and the mature naive stage with the phenotype surface IgM-positive and CD19-positive, and are subject to the process of B cell selection. A transitional B cell migrates from the bone marrow into the peripheral circulation, and then to the spleen.	http://purl.obolibrary.org/obo/CL_0000818
CD3-, CD19+, CD20+, CD27+	A memory B cell is a mature B cell that is long-lived, readily activated upon re-encounter of its antigenic determinant, and has been selected for expression of higher affinity immunoglobulin. This cell type has the phenotype CD19-positive, CD20-positive, MHC Class II-positive, and CD138-negative.	http://purl.obolibrary.org/obo/CL_0000787
CD3-, CD19+, CD20+, CD27+, IgD+	An unswitched memory B cell is a memory B cell that has the phenotype IgM-positive, IgD-positive, CD27-positive, CD138-negative, IgG-negative, IgE-negative, and IgA-negative.	http://purl.obolibrary.org/obo/CL_0000970
CD3-, CD19+, CD20+, CD27+, IgD-	A memory B cell that lacks expression of surface IgD.	http://purl.obolibrary.org/obo/CL_0001053
CD3-, CD19+, CD20+, CD27-, IgD+	A naive B cell is a mature B cell that has the phenotype surface IgD-positive, surface IgM-positive, CD20-positive, CD27-negative and that has not yet been activated by antigen in the periphery.	http://purl.obolibrary.org/obo/CL_0000788
CD3-, CD19+, CD20-, CD27hi, CD38hi	An activated mature (naive or memory) B cell that is secreting immunoglobulin, typified by being CD27-positive, CD38-positive, CD138-negative.	http://purl.obolibrary.org/obo/CL_0000980
CD3-, CD19-, CD20-, CD14+	Myeloid mononuclear recirculating leukocyte that can act as a precursor of tissue macrophages, osteoclasts and some populations of tissue dendritic cells.	http://purl.obolibrary.org/obo/CL_0000576
CD3-, CD19-, CD20-, CD14+, CD16+	A CD14-positive monocyte that is also CD16-positive and CCR2-negative.	http://purl.obolibrary.org/obo/CL_0002397
CD3-, CD19-, CD20-, CD14+, CD16-	A classical monocyte that is CD14-positive, CD16-negative, CD64-positive, CD163-positive.	http://purl.obolibrary.org/obo/CL_0002057

CD3-, CD19-, CD20-, CD14-, CD16-, CD56-, HLA-DR+	A cell of hematopoietic origin, typically resident in particular tissues, specialized in the uptake, processing, and transport of antigens to lymph nodes for the purpose of stimulating an immune response via T cell activation. These cells are lineage negative (CD3-negative, CD19-negative, CD34-negative, and CD56-negative).	http://purl.obolibrary.org/obo/CL_0000451
CD3-, CD19-, CD20-, CD14-, CD16-, CD56-, HLA-DR+, CD11c+, CD123-	A dendritic cell of the myeloid lineage.	http://purl.obolibrary.org/obo/CL_0000782
CD3-, CD19-, CD20-, CD14-, CD16-, CD56-, HLA-DR+, CD11c-, CD123+	A dendritic cell type of distinct morphology, localization, and surface marker expression (CD123-positive) from other dendritic cell types and associated with early stage immune responses, particularly the release of physiologically abundant amounts of type I interferons in response to infection.	http://purl.obolibrary.org/obo/CL_0000784
CD3-, CD19-, CD20-, CD14-, HLA-DR-, CD16+, CD56+	A mature natural killer cell that has the phenotype CD56-low, CD16-positive and which is capable of cytotoxicity and cytokine production.	http://purl.obolibrary.org/obo/CL_0000939
CD3-, CD19-, CD20-, CD14-, HLA-DR-, CD16-, CD56++	NK cell that has the phenotype CD56-bright, CD16-negative, and CD84-positive with the function to secrete interferon-gamma but is not cytotoxic.	http://purl.obolibrary.org/obo/CL_0000938
CD3-, CD56+	A lymphocyte that can spontaneously kill a variety of target cells without prior antigenic activation via germline encoded activation receptors and also regulate immune responses via cytokine release and direct contact with other cells.	http://purl.obolibrary.org/obo/CL_0000623
CD4+	A CD4-positive, alpha-beta T cell that cooperates with other lymphocytes via direct contact or cytokine release to initiate a variety of immune functions.	http://purl.obolibrary.org/obo/CL_0000492
CD4+, CCR7+, CD127+, CD25-, CD62Lhi, CD44lo	An antigen inexperienced CD4+, alpha-beta T cell with the phenotype CCR7+, CD127+ and CD62L+. This cell type develops in the thymus. This cell type is also described as being CD25-, CD62L-high, and CD44-low.	http://purl.obolibrary.org/obo/CL_0000895

CD4+, CCR7+, CD127+, CD45RA-, CD45RO+, CD25-	CD4+, alpha-beta memory T cell with the phenotype CCR7+, CD127+, CD45RA-, CD45RO+, and CD25-.	http://purl.obolibrary.org/obo/CL_0000904
CD4+, CCR7-, CD127+, CD45RA-, CD45RO+, CD25-	CD4+, alpha-beta memory T cell with the phenotype CCR7-, CD127+, CD45RA-, CD45RO+, and CD25-.	http://purl.obolibrary.org/obo/CL_0000905
CD4+, CD25+	A CD4+, CD25+, alpha-beta T cell that regulates overall immune responses as well as the responses of other T cell subsets through direct cell-cell contact and cytokine release.	http://purl.obolibrary.org/obo/CL_0000792
CD4+, CD45RA+, CD45RO-, CCR7-	A CD4+, alpha beta memory T cell with the phenotype CD45RA+, CD45RO-, and CCR7-.	http://purl.obolibrary.org/obo/CL_0001087
CD4+, CD69+, CD62L-, CD127-, and CD25+	A recently activated CD4-positive, alpha-beta T cell with the phenotype CD69-positive, CD62L-negative, CD127-negative, and CD25-positive.	http://purl.obolibrary.org/obo/CL_0000896
CD4+, CXCR5+, CCR7-	A CD4-positive, CXCR5-positive, CCR7-negative alpha-beta T cell located in follicles of secondary lymph nodes that expresses is BCL6-high, ICOS-high and PD1-high, and stimulates follicular B cells to undergo class-switching and antibody production.	http://purl.obolibrary.org/obo/CL_0002038
CD5+, CD10+, CD19+, CD20+, CD21+, CD22+, CD24+, CD25-, CD27-, CD34-, CD38+, CD40+, CD43-, CD45+, CD48+, CD53+, CD79a+, CD80-, CD81+, CD86-, CD95-, CD127-, CD138-, CD185+, CD196+, MHCII/HLA-DR+, RAG+, TdT-, Vpre-B-, preBCR-	An immature B cell is a B cell that has the phenotype surface IgM-positive and surface IgD-negative, and have not undergone class immunoglobulin class switching or peripheral encounter with antigen and activation.;Immature B cells are also reportedly CD5-positive, CD10-positive, CD19-positive, CD20-positive, CD21-positive, CD22-positive, CD24-positive, CD25-negative, CD27-negative, CD34-negative, CD38-positive, CD40-positive, CD43-negative, CD45-positive, CD48-positive, CD53-positive, CD79a-positive, CD80-negative, CD81-positive, CD86-negative, CD95-negative, CD127-negative, CD138-negative, CD185-positive, CD196-positive, MHCII/HLA-DR-positive, RAG-positive, TdT-negative, Vpre-B-negative, and preBCR-negative. Transcription factors expressed: Pax5-positive.	http://purl.obolibrary.org/obo/CL_0000816
CD8+, CCR7+, CD127+, CD45RA-, CD45RO+, CD25-	CD8+, alpha-beta memory T cell with the phenotype CCR7+, CD127+, CD45RA-, CD45RO+, and CD25-.	http://purl.obolibrary.org/obo/CL_0000907

CD8+, CCR7-, CD45RA+	A CD8+, alpha-beta T cell with the phenotype CCR7-, CD45RA+.	http://purl.obolibrary.org/obo/CL_0001050
CD8+, CD45RA+, CCR7+, CD127+, CD25-, CD62Lhi, CD44lo	A CD8+, alpha-beta T cell that has not experienced activation via antigen contact and has the phenotype CD45RA+, CCR7+ and CD127+. This cell type is also described as being CD25-, CD62L-high and CD44-low.	http://purl.obolibrary.org/obo/CL_0000900
CD8+, CD45RA+, CD45RO-, CCR7-	A CD8+, alpha beta memory T cell with the phenotype CD45RA+, CD45RO-, and CCR7-.	http://purl.obolibrary.org/obo/CL_0001062
CD8+, CD69+, CD62L-, CD127-, CD25+, and CCR7-	A CD8+, alpha-beta T cell with the phenotype CD69+, CD62L-, CD127-, CD25+, and CCR7-.	http://purl.obolibrary.org/obo/CL_0000906
CD9+, CD191+, CD193+, CD14-, CD32+, CD44+, CD48+, CD69+, CD192-, MBP1+, MBP2+, TLR2-, TLR4-	Any of the immature or mature forms of a granular leukocyte with a nucleus that usually has two lobes connected by one or more slender threads of chromatin, and cytoplasm containing coarse, round granules that are uniform in size and which can be stained by the dye eosin. Eosinophils are CD9-positive, CD191-positive, and CD193-positive.;Eosinophils are also CD14-negative, CD32-positive, CD44-positive, CD48-positive, CD69-positive, CD192-negative, MBP1-positive, MBP2-positive, TLR2-negative, TLR4-negative, and lineage-negative (B220, CD2, CD14, CD19, CD56, CD71, CD117, CD123, CD235a (glycophorin A), and TER119). The cytokines IL-3, IL-5, and GM-CSF are involved in their development and differentiation. Usually considered CD16-negative, CD16 is observed on eosinophilic metamyelocyte.	http://purl.obolibrary.org/obo/CL_0000771
Cell	A material entity of anatomical origin (part of or deriving from an organism) that has as its parts a maximally connected cell compartment surrounded by a plasma membrane.;The definition of cell is intended to represent all cells, and thus a cell is defined as a material entity and not an anatomical structure, which implies that it is part of an organism (or the entirety of one).	http://purl.obolibrary.org/obo/CL_0000000

FoxP3, CD25, IL-10, TGF-beta	A T cell which regulates overall immune responses as well as the responses of other T cell subsets through direct cell-cell contact and cytokine release.;This cell type may express FoxP3 and CD25 and secretes IL-10 and TGF-beta.	http://purl.obolibrary.org/obo/CL_0000815
gamma-delta T cell	A T cell that expresses a gamma-delta T cell receptor complex.;Note that gamma-delta T cells have both thymic and extrathymic differentiation pathways.	http://purl.obolibrary.org/obo/CL_0000798
Granulocyte	A leukocyte with abundant granules in the cytoplasm.	http://purl.obolibrary.org/obo/CL_0000094
Helper T cell	A effector T cell that provides help in the form of secreted cytokines to other immune cells.	http://purl.obolibrary.org/obo/CL_0000912
IgD+, CD21+, CD23+, CD62L-, CD93+	A transitional stage B cell that has the phenotype surface IgM-positive, surface IgD-postive, CD21-positive, CD23-positive, CD62L-negative, CD93-positive and is located in the splenic B follicles. This cell type has also been described as IgM-high, CD19-positive, B220-positive, AA4-positive, and CD23-positive.;T2 B cells are also reportedly CD20-positive, CD24-positive, CD38-positive, CD48-positive, CD84-positive, CD150-positive, CD244-negative, and CD352-positive.	http://purl.obolibrary.org/obo/CL_0000959
IgD-, CD21-, CD23-, and CD62L-, CD93+	A transitional stage B cell that migrates from the bone marrow into the peripheral circulation, and finally to the spleen. This cell type has the phenotype surface IgM-positive, surface IgD-negative, CD21-negative, CD23-negative, and CD62L-negative, and CD93-positive. This cell type has also been described as IgM-high, CD19-positive, B220-positive, AA4-positive, and CD23-negative.;T1 B cells are also reportedly CD10-negative/positive??, CD20-positive, CD24-positive, CD38-positive, CD48-positive, CD84-positive, CD150-positive, CD244-negative, and CD352-positive.	http://purl.obolibrary.org/obo/CL_0000958
IgG memory B cell	An IgG memory B cell is a class switched memory B cell that is class switched and expresses IgG on the cell surface.	http://purl.obolibrary.org/obo/CL_0000979

Immature Erythrocyte	An immature erythrocyte that changes the protein composition of its plasma membrane by exosome formation and extrusion. The types of protein removed differ between species though removal of the transferrin receptor is apparent in mammals and birds.	http://purl.obolibrary.org/obo/CL_0000558
Leukocyte	An achromatic cell of the myeloid or lymphoid lineages capable of ameboid movement, found in blood or other tissue.	http://purl.obolibrary.org/obo/CL_0000738
Living cells gated from dead cells	Viable cells	http://purl.obolibrary.org/obo/PATO_0000169
Lymphocyte	A lymphocyte is a leukocyte commonly found in the blood and lymph that has the characteristics of a large nucleus, a neutral staining cytoplasm, and prominent heterochromatin.;Editors note: consider adding taxon constraint to vertebrata (PMID:18025161)	http://purl.obolibrary.org/obo/CL_0000542
Neutrophil	Any of the immature or mature forms of a granular leukocyte that in its mature form has a nucleus with three to five lobes connected by slender threads of chromatin, and cytoplasm containing fine inconspicuous granules and stainable by neutral dyes.	http://purl.obolibrary.org/obo/CL_0000775

12. **lk_cell_population_pref_map**

Name	Description
name_reported	name_preferred
0min	cell
100min	cell
10min	cell
120min	cell
15min	cell
20min	cell
30min	cell
40min	cell
50min	cell
5min	cell
60min	cell
80min	cell
90min	cell

AA4 lo mature and marginal zonal B cells	marginal zone B cell
AA4hi Immature B cells	immature B cell
Activated CD4 T cell	activated CD4-positive, alpha-beta T cell
activated memory B cell	memory B cell
All Events	cell
Annexin negative	cell
Antibody Secreting Cells (ASCs)	B cell
B cell: pSTAT1	B cell
B cell: pSTAT3	B cell
B cell: pSTAT5	B cell
B cells	B cell
B cells in Immature anti-IgM treated replicate 1	immature B cell
B cells in Immature anti-IgM treated replicate 2	immature B cell
B cells in Immature BAFF + anti-IgM treated replicate 1	immature B cell
B cells in Immature BAFF + anti-IgM treated replicate 2	immature B cell
B cells in Immature BAFF treated replicate 1	immature B cell
B cells in Immature BAFF treated replicate 2	immature B cell
B cells in Immature untreated replicate 1	immature B cell
B cells in Immature untreated replicate 2	immature B cell
B cells in Mature anti-IgM treated replicate 1	mature B cell
B cells in Mature anti-IgM treated replicate 2	mature B cell
B cells in Mature anti-IgM treated replicate 3	mature B cell
B cells in Mature BAFF + anti-IgM treated replicate 1	mature B cell
B cells in Mature BAFF + anti-IgM treated replicate 2	mature B cell
B cells in Mature BAFF + anti-IgM treated replicate 3	mature B cell
B cells in Mature BAFF treated replicate 1	mature B cell
B cells in Mature BAFF treated replicate 2	mature B cell
B cells in Mature BAFF treated replicate 3	mature B cell
B cells in Mature untreated replicate 1	mature B cell
B cells in Mature untreated replicate 2	mature B cell
B cells in Mature untreated replicate 3	mature B cell
B lym CD19+,Freq. of,WBC CD45+	B cell
B lym CD27+,Freq. of,Q3: CD19+, CD20-	B cell
B-cells	B cell

B-cells out of leukocytes	B cell
basophils	basophil
Bcells	B cell
Bcl2_pCD4	CD4+ T cell
Bcl2_pCD8	CD8+ T cell
BCL6+ CD4+CD44low	cell
BCL6+ Non-Tfh	cell
BCL6+ Tfh	T follicular helper cell
BDCA2	cell
BDCA3	cell
BDCA3+ myeloid dendritic cell	myeloid dendritic cell
BDCA3_abs	cell
BDCA3_CD2n	cell
BDCA3_CD2n_abs	cell
BDCA3_CD2p	cell
BDCA3_CD2p_abs	cell
BDCA3_CD40n	cell
BDCA3_CD40p	cell
BDCA3_CD86n	cell
BDCA3_CD86n_abs	cell
BDCA3_CD86p	cell
BDCA3_CD86p_abs	cell
BDCA3_pmDC	plasmacytoid dendritic cell
Bulk CD4	CD4+ T cell
Bulk CD8	CD8+ T cell
Caspase-3+ B cell	B cell
Caspase-3+ CD4+ T cell	CD4+ T cell
Caspase-3+ CD8+ T cell	CD8+ T cell
Caspase-3+ central memory CD4+ T cell	central memory CD4+ T cell
Caspase-3+ central memory CD8+ T cell	central memory CD8+ T cell
Caspase-3+ effector memory CD4+ T cell	effector memory CD4+ T cell
Caspase-3+ effector memory CD8+ T cell	effector memory CD8+ T cell
Caspase-3+ naive CD4+ T cell	naive T cell
Caspase-3+ naive CD8+ T cell	naive T cell
CCR6+ CD8+ T cell	CD8+ T cell
CCR6pCXCR3p_nonTFH	cell
CCR6pCXCR3p_TFH	T follicular helper cell
CCR7+ CD4+CD44low	CD4+ T cell
CCR7+ Non-Tfh	cell
CCR7+ Tfh	T follicular helper cell
CD107a+ CD4 T-cells	CD4+ T cell
CD107a+ CD56dim NK cells	NK cell

CD107a+ CD56hi NK cells	NK cell
CD107a+ CD8 T-cells	CD8+ T cell
CD107a+ gd T-cells	gamma-delta T cell
CD107a+ NK T-cells	NK cell
CD11b+ CD16+ monocyte	monocyte
CD11b+ CD16- monocyte	monocyte
CD11b- CD16+ monocyte	monocyte
CD11b- CD16- monocyte	monocyte
CD11bn_Slan	cell
CD11bp_CD14dimCD16p	cell
CD11bp_CD14pCD16n	cell
CD11bp_CD14pCD16p	cell
CD11bp_Slan	cell
CD11c_pWBC	leukocyte
CD123_pWBC	leukocyte
CD127loCD25p	cell
CD138	cell
CD138+ B cell	B cell
CD138_abs	cell
CD138_CD86	cell
CD138_CD86_abs	cell
CD14+ monocytes	CD14-positive monocyte
CD14+CD16+ monocyte	CD14-positive monocyte
CD14+CD16+ monocytes out of leukocytes	CD14-positive monocyte
CD14+CD16- monocyte	CD14-positive monocyte
CD14+CD16- monocytes out of leukocytes	CD14-positive monocyte
CD14-CD16+ monocyte	monocyte
CD14-CD16+ monocytes out of leukocytes	monocyte
CD14-CD16- monocytes out of leukocytes	monocyte
CD14-positive, CD16-negative classical monocyte	CD14-positive monocyte
CD14dimCD16p	cell
CD14lo CD16+ monocyte	CD14-positive monocyte
CD14lo CD16- monocyte	CD14-positive monocyte
CD14n_Slan	cell
CD14nCD16n	cell
CD14nCD16n_abs	cell
CD14nCD16n_CD86	cell
CD14nCD16p	cell
CD14nCD16p_abs	cell
CD14nCD16p_CD86	cell
CD14p	cell

CD14p_Slan	cell
CD14pCD16n	cell
CD14pCD16n_abs	cell
CD14pCD16n_CD86	cell
CD14pCD16p	cell
CD14pCD16p_abs	cell
CD14pCD16p_CD86	cell
CD154+ CD4 T-cells	CD4+ T cell
CD154+ CD56dim NK cells	NK cell
CD154+ CD56hi NK cells	NK cell
CD154+ CD8 T-cells	CD8+ T cell
CD154+ gd T-cells	gamma-delta T cell
CD154+ NK T-cells	NK cell
CD16+ monocyte	monocyte
CD16+ monocytes	monocyte
CD16+CD14+ monocytes	CD14-positive monocyte
CD16+CD14- monocytes	monocyte
CD16- monocyte	monocyte
CD16- monocytes	monocyte
CD16-CD56bright NK cells	NK cell
CD161+ NK cells	NK cell
CD161+ NKT cells	NK cell
CD161+CD4+ T cells	CD4+ T cell
CD161+CD45RA+ Tregs	regulatory T cell
CD161+CD45RA- Tregs	regulatory T cell
CD161+CD8+ T cells	CD8+ T cell
CD161- NK cells	NK cell
CD161- NKT cells	NK cell
CD161-CD4+ T cells	CD4+ T cell
CD161-CD45RA+ Tregs	regulatory T cell
CD161-CD45RA- Tregs	regulatory T cell
CD161-CD8+ T cells	CD8+ T cell
CD16hi CD11b+ neutrophil	neutrophil
CD16hi CD11b- neutrophil	neutrophil
CD16lo CD11b+ neutrophil	neutrophil
CD16lo CD11b- neutrophil	neutrophil
CD16n_CD11bn_abs	cell
CD16n_CD11bp_abs	cell
CD16n_CD86n_abs	cell
CD16n_CD86p_abs	cell
CD16n_CX3CR1n_abs	cell
CD16n_CX3CR1p_abs	cell

CD16n_HLADRn_abs	cell
CD16n_HLADRp_abs	cell
CD16n_NK	NK cell
CD16n_SLANn_abs	cell
CD16n_SLANp_abs	cell
CD16nCD11bn_immature2Neu	cell
CD16nCD11bp_immature1Neu	cell
CD16p_CD11bn_abs	cell
CD16p_CD11bp_abs	cell
CD16p_CD86n_abs	cell
CD16p_CD86p_abs	cell
CD16p_CX3CR1n_abs	cell
CD16p_CX3CR1p_abs	cell
CD16p_HLADRn_abs	cell
CD16p_HLADRp_abs	cell
CD16p_NK	NK cell
CD16p_SLANn_abs	cell
CD16p_SLANp_abs	cell
CD16pCD11bn_Xartefact	cell
CD16pCD11bp_matureNeu	cell
CD19	cell
CD19+	cell
CD19+ among lymphocytes	cell
CD19+ IgD+CD27+	cell
CD19+ IgD+CD27-	cell
CD19+ IgD+CD27-/MTG+	cell
CD19+ IgD+CD27-/MTG+/T1	cell
CD19+ IgD+CD27-/MTG+/T2	cell
CD19+ IgD+CD27-/MTG+/T3	cell
CD19+ IgD+CD27-/MTG+/TN	cell
CD19+ IgD+CD27-/MTG-/TN	cell
CD19+ IgD-	cell
CD19+ IgD-CD27+	cell
CD19+ IgD-CD27-	cell
CD19+/IgD+CD27+	cell
CD19+/IgD+CD27-	cell
CD19+/IgD-CD27+	cell
CD19+/IgD-CD27-	cell
CD19+IgD-CD27+	cell
CD19_abs	cell
CD19_CD27p	cell
CD19_CD27p_abs	cell

CD19_CD86_abs	cell
CD19hi	cell
CD19pCD20n	cell
CD19pCD20n_abs	cell
CD19pCD20n_CD86p	cell
CD19pCD20n_CD86p_abs	cell
CD19pCD20p	cell
CD19pCD20p_abs	cell
CD19pCD20p_CD86p	cell
CD19pCD20p_CD86p_abs	cell
CD1c	cell
CD1c+ myeloid dendritic cell	CD1c-positive myeloid dendritic cell
CD1c_abs	cell
CD1c_CD2n	cell
CD1c_CD2n_abs	cell
CD1c_CD2p	cell
CD1c_CD2p_abs	cell
CD1c_CD40n	cell
CD1c_CD40p	cell
CD1c_CD86n	cell
CD1c_CD86n_abs	cell
CD1c_CD86p	cell
CD1c_CD86p_abs	cell
CD1c_pmDC	CD1c-positive myeloid dendritic cell
CD2+ BDCA3+ myeloid dendritic cell	myeloid dendritic cell
CD2+ CD1c+ myeloid dendritic cell	CD1c-positive myeloid dendritic cell
CD2+ myeloid dendritic cell	myeloid dendritic cell
CD2+ plasmacytoid dendritic cell	plasmacytoid dendritic cell
CD2- BDCA3+ myeloid dendritic cell	myeloid dendritic cell
CD2- CD1c+ myeloid dendritic cell	CD1c-positive myeloid dendritic cell
CD2- myeloid dendritic cell	myeloid dendritic cell
CD2- plasmacytoid dendritic cell	plasmacytoid dendritic cell
CD20+ B cell	B cell
CD20- B cell	B cell
CD20- CD3- cells	cell
CD20- CD3- lymphocytes	lymphocyte
CD20nCD19p	cell
CD20pCD19p	cell
CD25p_pCD4	CD4+ T cell
CD25p_pCD8	CD8+ T cell
CD27+ B cell	B cell
CD27+CD8+ T cells	CD8+ T cell

CD27-CD8+ T cells	CD8+ T cell
CD27nIgDn_B	B cell
CD27pCD19	cell
CD28+CD27+ T cells	T cell
CD28+CD27- T cells	T cell
CD28+CD4+ T cells	CD4+ T cell
CD28+CD8+ T cells	CD8+ T cell
CD28-CD27+ T cells	T cell
CD28-CD27- T cells	T cell
CD28-CD8+ T cells	CD8+ T cell
CD2n_BDCA2	cell
CD2n_BDCA3	cell
CD2n_CD1c	cell
CD2n_Slan	cell
CD2nCD86n_BDCA2	cell
CD2nCD86n_BDCA3	cell
CD2nCD86n_CD1c	cell
CD2nCD86p_BDCA2	cell
CD2nCD86p_BDCA3	cell
CD2nCD86p_CD1c	cell
CD2p_BDCA2	cell
CD2p_BDCA3	cell
CD2p_CD1c	cell
CD2p_Slan	cell
CD2pCD86n_BDCA2	cell
CD2pCD86n_BDCA3	cell
CD2pCD86n_CD1c	cell
CD2pCD86p_BDCA2	cell
CD2pCD86p_BDCA3	cell
CD2pCD86p_CD1c	cell
CD3	T cell
CD3 Viability	cell
CD3+ lymphocytes	lymphocyte
CD3+ NKT cells	NK cell
CD3+ T cells	T cell
CD3+/CD4+	CD4+ T cell
CD3+/CD8+	CD8+ T cell
CD3- lymphocytes	lymphocyte
CD314+CD94+ NK cells	NK cell
CD314+CD94+CD8+ T cells	CD8+ T cell
CD314+CD94+CD8- T cells	T cell
CD314+CD94- NK cells	NK cell

CD314+CD94-CD8+ T cells	CD8+ T cell
CD314+CD94-CD8- T cells	T cell
CD314-CD94+ NK cells	NK cell
CD314-CD94+CD8+ T cells	CD8+ T cell
CD314-CD94+CD8- T cells	T cell
CD314-CD94- NK cells	NK cell
CD314-CD94-CD8+T cells	CD8+ T cell
CD314-CD94-CD8- T cells	T cell
CD33+ monocytes	monocyte
CD38bri_pCD4	CD4+ T cell
CD38bri_pCD8	CD8+ T cell
CD3_abs	cell
CD3_DR	cell
CD3_ICOS	cell
CD3_ICOSp_abs	cell
CD3hi NKT cells	NK cell
CD3p	cell
CD3p_CD27	cell
CD3p_CD38	cell
CD3p_CD56	cell
CD3p_CD56_CD27	cell
CD3p_CD56_CD38	cell
CD4	CD4+ T cell
CD4 positive CD8 negative	CD4+ T cell
CD4 T cells	CD4+ T cell
CD4 T-cells	CD4+ T cell
CD4+	CD4+ T cell
CD4+ T cells	CD4+ T cell
CD4+: pSTAT1	CD4+ T cell
CD4+: pSTAT3	CD4+ T cell
CD4+: pSTAT5	CD4+ T cell
CD4+CD27+ T cells	CD4+ T cell
CD4+CD27- T cells	CD4+ T cell
CD4+CD28+ T cells	CD4+ T cell
CD4+CD28- T cells	CD4+ T cell
CD4+CD44+	CD4+ T cell
CD4+CD45RA+: pSTAT1	CD4+ T cell
CD4+CD45RA+: pSTAT3	CD4+ T cell
CD4+CD45RA+: pSTAT5	CD4+ T cell
CD4+CD45RA-: pSTAT1	CD4+ T cell
CD4+CD45RA-: pSTAT3	CD4+ T cell
CD4+CD45RA-: pSTAT5	CD4+ T cell

CD4+CD69+ T cells	CD4+ T cell
CD4+CXCR5+BCL6+	CD4+ T cell
CD4+Foxp3GFP+ events	CD4+ T cell
CD40+ BDCA3+ myeloid dendritic cell	myeloid dendritic cell
CD40+ CD1c+ myeloid dendritic cell	CD1c-positive myeloid dendritic cell
CD40+ monocyte	monocyte
CD40+ myeloid dendritic cell	myeloid dendritic cell
CD40+ plasmacytoid dendritic cell	plasmacytoid dendritic cell
CD40- BDCA3+ myeloid dendritic cell	myeloid dendritic cell
CD40- CD1c+ myeloid dendritic cell	CD1c-positive myeloid dendritic cell
CD40- myeloid dendritic cell	myeloid dendritic cell
CD40- plasmacytoid dendritic cell	plasmacytoid dendritic cell
CD40p_CD14dimCD16p	cell
CD40p_CD14pCD16n	cell
CD40p_CD14pCD16p	cell
CD45+ cells/uL	cell
CD45RA negative	cell
CD45RAnCD4n_BDCA2_pBDCA2	cell
CD45RAnCD4n_CD1c_pCD1c	cell
CD45RAnCD4p_BDCA2_pBDCA2	cell
CD45RAnCD4p_CD1c_pCD1c	cell
CD45RApCD4n_BDCA2_pBDCA2	cell
CD45RApCD4n_CD1c_pCD1c	cell
CD45RApCD4p_BDCA2_pBDCA2	cell
CD45RApCD4p_CD1c_pCD1c	cell
CD4_abs	CD4+ T cell
CD4_DR	CD4+ T cell
CD4_ICOS	CD4+ T cell
CD4_ICOSp_abs	CD4+ T cell
CD56br_pLY	cell
CD56diCD16n_pLY	cell
CD56diCD16p_pLY	cell
CD56dim NK cells	NK cell
CD56hi NK cells	NK cell
CD56nCD16p_pLY	cell
CD57+ NK cells	NK cell
CD57+CD4+ T cells	CD4+ T cell
CD57+CD8+ T cells	CD8+ T cell
CD57- NK cells	NK cell
CD57-CD4+ T cells	CD4+ T cell
CD57-CD8+ T cells	CD8+ T cell
CD62L+ CD16+ monocyte	monocyte

CD62L+ CD16- monocyte	monocyte
CD62L+ CD4+CD44low	CD4+ T cell
CD62L+ Non-Tfh	cell
CD62L+ Tfh	T follicular helper cell
CD62L- CD16+ monocyte	monocyte
CD62L- CD16- monocyte	monocyte
CD62L- neutrophil	neutrophil
CD62Ln_pmatureNeu	mature neutrophil
CD62Lp_CD14dimCD16p	cell
CD62Lp_CD14pCD16n	cell
CD62Lp_CD14pCD16p	cell
CD62Lp_pmatureNeu	mature neutrophil
CD69+ CD4+CD44low	CD4+ T cell
CD69+ Non-Tfh	cell
CD69+ Tfh	T follicular helper cell
CD8	CD8+ T cell
CD8 T cells	CD8+ T cell
CD8 T-cells	CD8+ T cell
CD8+ IFNg+ cells	CD8+ T cell
CD8+ IFNg+IL2+TNFa+ cells	CD8+ T cell
CD8+ IFNg+IL2+TNFa- cells	CD8+ T cell
CD8+ IFNg+IL2-TNFa+ cells	CD8+ T cell
CD8+ IFNg+IL2-TNFa- cells	CD8+ T cell
CD8+ IFNg-IL2+TNFa+ cells	CD8+ T cell
CD8+ IFNg-IL2+TNFa- cells	CD8+ T cell
CD8+ IFNg-IL2-TNFa+ cells	CD8+ T cell
CD8+ IL2+ cells	CD8+ T cell
CD8+ T cells	CD8+ T cell
CD8+ Tet+	CD8+ T cell
CD8+ TNFa+ cells	CD8+ T cell
CD8+: pSTAT1	CD8+ T cell
CD8+: pSTAT3	CD8+ T cell
CD8+: pSTAT5	CD8+ T cell
CD8+CD45RA+: pSTAT1	CD8+ T cell
CD8+CD45RA+: pSTAT3	CD8+ T cell
CD8+CD45RA+: pSTAT5	CD8+ T cell
CD8+CD45RA-: pSTAT1	CD8+ T cell
CD8+CD45RA-: pSTAT3	CD8+ T cell
CD8+CD45RA-: pSTAT5	CD8+ T cell
CD8+CD69+ T cells	CD8+ T cell
CD8- T cells	T cell
CD80+ myeloid dendritic cell	myeloid dendritic cell

CD80+ plasmacytoid dendritic cell	plasmacytoid dendritic cell
CD80+CD14+CD16+ monocyte	CD16+ monocyte
CD80+CD14+CD16- monocyte	CD16+ monocyte
CD80+CD14-CD16+ monocyte	monocyte
CD83+ myeloid dendritic cell	myeloid dendritic cell
CD83+ plasmacytoid dendritic cell	plasmacytoid dendritic cell
CD83+CD14+CD16+ monocyte	CD16+ monocyte
CD83+CD14+CD16- monocyte	monocyte
CD83+CD14-CD16+ monocyte	monocyte
CD85j+CD4+ T cells	CD4+ T cell
CD85j+CD8+ T cells	CD8+ T cell
CD85j-CD4+ T cells	CD4+ T cell
CD85j-CD8+ T cells	CD8+ T cell
CD86	cell
CD86+ B cell	B cell
CD86+ BDCA3+ myeloid dendritic cell	myeloid dendritic cell
CD86+ CD138+ B cell	B cell
CD86+ CD16+ monocyte	monocyte
CD86+ CD16- monocyte	monocyte
CD86+ CD1c+ myeloid dendritic cell	CD1c-positive myeloid dendritic cell
CD86+ CD20+ B cell	B cell
CD86+ CD20- B cell	B cell
CD86+ IgD+ memory B cell	memory B cell
CD86+ IgD- CD27- B cell	B cell
CD86+ IgD- memory B cell	IgD- memory B cell
CD86+ myeloid dendritic cell	myeloid dendritic cell
CD86+ naive B cell	naive B cell
CD86+ plasmablast	plasmablast
CD86+ plasmacytoid dendritic cell	plasmacytoid dendritic cell
CD86+ transitional B cell	transitional B cell
CD86+CD14+CD16+ monocyte	CD14-positive monocyte
CD86+CD14+CD16- monocyte	CD14-positive monocyte
CD86+CD14-CD16+ monocyte	monocyte
CD86- BDCA3+ myeloid dendritic cell	myeloid dendritic cell
CD86- CD16+ monocyte	monocyte
CD86- CD16- monocyte	monocyte
CD86- CD1c+ myeloid dendritic cell	CD1c-positive myeloid dendritic cell
CD86- myeloid dendritic cell	myeloid dendritic cell
CD86- plasmacytoid dendritic cell	plasmacytoid dendritic cell
CD86n_Slan	cell
CD86p_CD14dimCD16p	cell
CD86p_CD14pCD16n	cell

CD86p_CD14pCD16p	cell
CD86p_Slan	cell
CD8_abs	CD8+ T cell
CD8_CCR6	CD8+ T cell
CD8_CCR6_abs	CD8+ T cell
CD8_CXCR3	CD8+ T cell
CD8_CXCR3_abs	CD8+ T cell
CD8_CXCR5	CD8+ T cell
CD8_CXCR5_abs	CD8+ T cell
CD8_DR	CD8+ T cell
CD8_ICOS	CD8+ T cell
CD8_ICOSp_abs	CD8+ T cell
CD94+ NK cells	NK cell
CD94+CD4+ T cells	CD4+ T cell
CD94+CD8+ T cells	CD8+ T cell
CD94- NK cells	NK cell
CD94-CD4+ T cells	CD4+ T cell
CD94-CD8+ T cells	CD8+ T cell
central memory CD4+ T cells	central memory CD4+ T cell
central memory CD8+ T cells	central memory CD8+ T cell
CFSE+ cells	cell
CM_CD4	central memory CD4+ T cell
CM_CD8	central memory CD8+ T cell
CTLA4p_pCD4	CD4+ T cell
CTLA4p_pCD8	CD8+ T cell
CX3CR1+ CD16+ monocyte	monocyte
CX3CR1+ CD16- monocyte	monocyte
CX3CR1- CD16+ monocyte	monocyte
CX3CR1- CD16- monocyte	monocyte
CX3CR1hi HLA-DR+ monocyte	monocyte
CX3CR1lo HLA-DR+ monocyte	monocyte
CXCR3+ B cells	B cell
CXCR3+ CD33+ monocytes	monocyte
CXCR3+ CD8+ T cell	CD8+ T cell
CXCR3+ NK cells	NK cell
CXCR3+CD4+ T cells	CD4+ T cell
CXCR3+CD8+ T cells	CD8+ T cell
CXCR3-FMO B cells	B cell
CXCR3-FMO CD33+ monocytes	monocyte
CXCR3-FMO CD4+ T cells	CD4+ T cell
CXCR3-FMO CD8+ T cells	CD8+ T cell
CXCR3-FMO NK cells	NK cell

CXCR5+ CD8+ T cell	CD8+ T cell
DC	dendritic cell
dn	cell
DR_pCD4	CD4+ T cell
DR_pCD8	CD8+ T cell
DRnCD38n_pCD4	CD4+ T cell
DRnCD38n_pCD8	CD8+ T cell
DRnCD38p_pCD4	CD4+ T cell
DRnCD38p_pCD8	CD8+ T cell
DRpCD38n_pCD4	CD4+ T cell
DRpCD38n_pCD8	CD8+ T cell
DRpCD38p_pCD4	CD4+ T cell
DRpCD38p_pCD8	CD8+ T cell
effector CD4+ T cells	effector CD4+ T cell
effector CD8+ T cells	effector CD8+ T cell
effector memory CD4+ T cells	effector memory CD4+ T cell
effector memory CD8+ T cells	effector memory CD8+ T cell
EM_CD4	effector memory CD4+ T cell
EM_CD8	effector memory CD8+ T cell
eos_abs	eosinophil
FCOM R10:- + - - after Lymph CD25 Bright	cell
FCOM R10:- - + - after Lymph	cell
FCOM R10:- - + - after MNC	cell
FCOM R11:+ + - - after Lymph CD25 Bright	cell
FCOM R11:+ - + - after Lymph	cell
FCOM R11:+ - + - after MNC	cell
FCOM R12:- + + - after Lymph	cell
FCOM R12:- + + - after MNC	cell
FCOM R12:- - + - after Lymph CD25 Bright	cell
FCOM R13:+ + + - after Lymph	cell
FCOM R13:+ + + - after MNC	cell
FCOM R13:+ - + - after Lymph CD25 Bright	cell
FCOM R14:- + + - after Lymph CD25 Bright	cell
FCOM R14:- - - + after Lymph	cell
FCOM R14:- - - + after MNC	cell
FCOM R15:+ + + - after Lymph CD25 Bright	cell
FCOM R15:+ - - + after Lymph	cell
FCOM R15:+ - - + after MNC	cell
FCOM R16:- + - + after Lymph	cell
FCOM R16:- + - + after MNC	cell

FCOM R16:- - - + after Lymph CD25 Bright	cell
FCOM R17:+ + - + after Lymph	cell
FCOM R17:+ + - + after MNC	cell
FCOM R17:+ - - + after Lymph CD25 Bright	cell
FCOM R18:- + - + after Lymph CD25 Bright	cell
FCOM R18:- - + + after Lymph	cell
FCOM R18:- - + + after MNC	cell
FCOM R19:+ + - + after Lymph CD25 Bright	cell
FCOM R19:+ - + + after Lymph	cell
FCOM R19:+ - + + after MNC	cell
FCOM R20:- + + + after Lymph	cell
FCOM R20:- + + + after MNC	cell
FCOM R20:- - + + after Lymph CD25 Bright	cell
FCOM R21:+ + + + after Lymph	cell
FCOM R21:+ + + + after MNC	cell
FCOM R21:+ - + + after Lymph CD25 Bright	cell
FCOM R22:- + + + after Lymph CD25 Bright	cell
FCOM R23:+ + + + after Lymph	cell
FCOM R23:+ + + + after Lymph CD25 Bright	cell
FCOM R23:- + - - after Lymph	cell
FCOM R24:- + - + after Lymph	cell
FCOM R25:- - - - after Lymph	cell
FCOM R26:- - - + after Lymph	cell
FCOM R6:- - - - after Lymph	cell
FCOM R6:- - - - after MNC	cell
FCOM R7:+ - - - after Lymph	cell
FCOM R7:+ - - - after MNC	cell
FCOM R8 :- + - - after Lymph	cell
FCOM R8 :- + - - after MNC	cell
FCOM R8 :- - - - after Lymph CD25 Bright	cell
FCOM R9 :+ + - - after Lymph	cell
FCOM R9 :+ + - - after MNC	cell
FCOM R9 :+ - - - after Lymph CD25 Bright	cell
FoxP3p_pCD4	CD4+ T cell
FoxP3p_pCD8	CD8+ T cell
gamma-delta T cells	gamma-delta T cell
gd T-cells	gamma-delta T cell
GranB_pCD4	CD4+ T cell

GranB_pCD8	CD8+ T cell
Granulo: pSTAT1	granulocyte
Granulo: pSTAT3	granulocyte
Granulo: pSTAT5	granulocyte
granulocytes out of leukocytes	granulocyte
GzB+ CD4 T-cells	CD4+ T cell
GzB+ CD56dim NK cells	NK cell
GzB+ CD56hi NK cells	NK cell
GzB+ CD8 T-cells	CD8+ T cell
GzB+ gd T-cells	gamma-delta T cell
GzB+ NK T-cells	NK cell
HLA-DR+ CD4+ T cell	CD4+ T cell
HLA-DR+ CD8+ T cell	CD8+ T cell
HLA-DR+ monocyte	monocyte
HLA-DR+ T cell	T cell
HLA-DR+ T follicular helper cell	T follicular helper cell
HLA-DR+ T helper cell	helper T cell
HLA-DR+ Tfh1 CD4+ T cell	Th1 CD4+ T cell
HLA-DR+ Tfh1/17 CD4+ T cell	T follicular helper cell
HLA-DR+ Tfh17 CD4+ T cell	Th17 CD4+ T cell
HLA-DR+ Tfh2 CD4+ T cell	non-Th1/Th17 CD4+ T cell
HLA-DR+ Th1 CD4+ T cell	non-Th1/Th17 CD4+ T cell
HLA-DR+ Th1/17 CD4+ T cell	T follicular helper cell
HLA-DR+ Th17 CD4+ T cell	Th17 CD4+ T cell
HLA-DR+ Th2 CD4+ T cell	non-Th1/Th17 CD4+ T cell
HLA-DRhi CD16+ monocyte	monocyte
HLA-DRhi CD16- monocyte	monocyte
HLA-DRlo CD16+ monocyte	monocyte
HLA-DRlo CD16- monocyte	monocyte
HLADR+ CD138+ B Cell	B cell
HLADR+ CD20+ B Cell	B cell
HLADR+ CD20- B Cell	B cell
HLADR+ CD27+ B Cell	B cell
HLADR+ IgD+ Memory B Cell	memory B cell
HLADR+ IgD- CD27- B cell	B cell
HLADR+ IgD- Memory B Cell	memory B cell
HLADR+ Naive B Cell	B cell
HLADR+ NK cells	NK cell
HLADR+ plasmablast	plasmablast
HLADR+ transitional B Cell	transitional B cell
HLADR+CD38+CD4+ T cells	CD4+ T cell
HLADR+CD38+CD8+ T cells	CD8+ T cell

HLADR+CD38-CD4+ T cells	CD4+ T cell
HLADR+CD38-CD8+ T cells	CD8+ T cell
HLADR- NK cells	NK cell
HLADR-CD38+CD4+ T cells	CD4+ T cell
HLADR-CD38+CD8+ T cells	CD8+ T cell
HLADR-CD38-CD4+ T cells	CD4+ T cell
HLADR-CD38-CD8+ T cells	CD8+ T cell
ICOS+ CD4+ T cell	CD4+ T cell
ICOS+ CD4+CD44low	CD4+ T cell
ICOS+ CD8+ T cell	CD8+ T cell
ICOS+ Non-Tfh	cell
ICOS+ T cell	T cell
ICOS+ T follicular helper cell	T follicular helper cell
ICOS+ T follicular helper cell type 1	Th1 CD4+ T cell
ICOS+ T follicular helper cell type 17	Th17 CD4+ T cell
ICOS+ T follicular helper cell type 2	non-Th1/Th17 CD4+ T cell
ICOS+ T helper cell	T follicular helper cell
ICOS+ Tfh	T follicular helper cell
ICOS+ Tfh1 CD4+ T cell	Th1 CD4+ T cell
ICOS+ Tfh1/17 CD4+ T cell	T follicular helper cell
ICOS+ Tfh17 CD4+ T cell	Th17 CD4+ T cell
ICOS+ Tfh2 CD4+ T cell	non-Th1/Th17 CD4+ T cell
ICOS+ Th1 CD4+ T cell	Th1 CD4+ T cell
ICOS+ Th1/17 CD4+ T cell	T follicular helper cell
ICOS+ Th17 CD4+ T cell	Th17 CD4+ T cell
ICOS+ Th2 CD4+ T cell	non-Th1/Th17 CD4+ T cell
ICOS+CD4+ T cell	CD4+ T cell
ICOS+CD8+ T cell	CD8+ T cell
ICOS-CD4+ T cells	CD4+ T cell
ICOS-CD8+ T cells	CD8+ T cell
ICOS_CCR6pCXCR3p_nonTFH	cell
ICOS_CCR6pCXCR3p_TFH	T follicular helper cell
ICOS_CD4	CD4+ T cell
ICOS_CD8	CD8+ T cell
ICOS_TFH	T follicular helper cell
ICOS_TFH1	Th1 CD4+ T cell
ICOS_TFH17	Th17 CD4+ T cell
ICOS_TFH2	non-Th1/Th17 CD4+ T cell
ICOS_TH1	Th1 CD4+ T cell
ICOS_TH17	Th17 CD4+ T cell
ICOS_TH2	non-Th1/Th17 CD4+ T cell
ID1, CD3+ of viable CD45+ cells (Total T cells)	T cell

ID10, HLA-DR+ of CD4+ T cells	CD4+ T cell
ID100, IgG+ of IgD-CD27+ memory B cells	IgG memory B cell
ID101, IgD+CD27+ of CD20+ B cells* (IgD+CD27+ memory B)	memory B cell
ID102, CD23+ of IgD+CD27+ memory B cells	memory B cell
ID103, CD38+ of IgD+CD27+ memory B cells*	memory B cell
ID104, CD80+ of IgD+CD27+ memory B cells	memory B cell
ID105, CD86+ of IgD+CD27+ memory B cells	memory B cell
ID106, IgD+CD27- of CD20+ B cells* (Naive B)	naive B cell
ID107, CD21+ of Naive B cells	naive B cell
ID108, CD38+ of Naive B cells	naive B cell
ID109, CD80+ of Naive B cells	naive B cell
ID11, CD40+ of CD4+ T cells	CD4+ T cell
ID110, CD86+ of Naive B cells	naive B cell
ID111, IgA+ of Naive B cells	naive B cell
ID112, IgG+ of Naive B cells	naive B cell
ID113, IgD-CD27- of CD20+ B cells* (IgD-CD27- memory B)	IgD- memory B cell
ID114, CD21+ of IgD-CD27- memory B cells	IgD- memory B cell
ID116, CD80+ of IgD-CD27- memory B cells	IgD- memory B cell
ID117, CD86+ of IgD-CD27- memory B cells	IgD- memory B cell
ID118, CD23+ of IgD-CD27- memory B cells	IgD- memory B cell
ID119, IgA+ of IgD-CD27- memory B cells	IgD- memory B cell
ID12, CD161+ of CD4+ T cells	CD4+ T cell
ID120, IgG+ of IgD-CD27- memory B cells	IgG memory B cell
ID13, CD196+ of CD4+ T cells	CD4+ T cell
ID14, IL17+ of CD4+ T cells	CD4+ T cell
ID15, IL21+ of CD4+ T cells	CD4+ T cell
ID16, IL22+ of CD4+ T cells	CD4+ T cell
ID17, IL23+ of CD4+ T cells	CD4+ T cell
ID19, IL17+ of CD161+CD4+ T cells	CD4+ T cell
ID2, CD4+ of total T cells	CD4+ T cell
ID20, IL21+ of CD161+CD4+ T cells	CD4+ T cell
ID21, IL22+ of CD161+CD4+ T cells	CD4+ T cell
ID22, CD161- of CD4+ T cells	CD4+ T cell
ID23, IL17+ of CD161-CD4+ T cells	CD4+ T cell
ID24, IL21+ of CD161-CD4+ T cells	CD4+ T cell

ID25, IL22+ of CD161-CD4+ T cells	CD4+ T cell
ID26, IL2+ of CD4+ T cells	CD4+ T cell
ID28, IL4+ of CD4+ T cells	CD4+ T cell
ID29.T2, TNFa+ of CD4+ T cells	CD4+ T cell
ID29.T3, TNFa+ of CD4+ T cells	CD4+ T cell
ID3, CD4+CD8+ of total T cells	T cell
ID30, CD39+ of CD4+ T cells	CD4+ T cell
ID31, CD103+ of CD4+ T cells	CD4+ T cell
ID32, CD127(IL7R)+ of CD4+ T cells	CD4+ T cell
ID33.T1, CD27+ of CD4+ T cells	CD4+ T cell
ID33.T2, CD27+ of CD4+ T cells	CD4+ T cell
ID33.T3, CD27+ of CD4+ T cells	CD4+ T cell
ID34, CD45RA+ of CD4+ T cells (Naive T)	CD4+ T cell
ID35, CD45RA- of CD4+ T cells (Total memory CD4+ T)	CD4+ T cell
ID36, CD27+CCR7- of memory CD4+ T cells (Effector memory CD4+ T)	effector memory CD4+ T cell
ID37, CD27+CCR7+ of memory CD4+ T cells (Central memory CD4+ T)	central memory CD4+ T cell
ID39, CD69+ of CD8+ T cells	CD8+ T cell
ID4, CD8+ of total T cells	CD8+ T cell
ID40, CD25+ of CD8+ T cells	CD8+ T cell
ID41, CD38+ of CD8+ T cells	CD8+ T cell
ID42, HLA-DR+ of CD8+ T cells	CD8+ T cell
ID43, CD39+ of CD8+ T cells	CD8+ T cell
ID44, CD103+ of CD8+ T cells	CD8+ T cell
ID45, TNFa+ of CD8+ T cells	CD8+ T cell
ID46, IL17A+ of CD8+ T cells (Tc17)	CD8+ T cell
ID47, IL23R+ of CD8+ T cells	CD8+ T cell
ID48, IL2+ of CD8+ T cells	CD8+ T cell
ID49, INFg+ of CD8+ T cells	CD8+ T cell
ID5, CD4-CD8- of total T cells	T cell
ID50, Perforin+ of CD8+ T cells	CD8+ T cell
ID51.T2, TNFa+ of CD8+ T cells	CD8+ T cell
ID51.T3, TNFa+ of CD8+ T cells	CD8+ T cell
ID52.T1, CD27+ of CD8+ T cells	CD8+ T cell
ID53, CD45RA+ of CD8+ T cells	CD8+ T cell
ID54, CD27+ of CD45RA+CD8+ T cells (Naive CD8+ T)	CD8+ T cell
ID55, CD27- of CD45RA+CD8+ T cells (EMRA CD8+ T)	effector memory CD8+ T cell
ID56, CD45RA- of CD8+ T cells (CD45RA- memory CD8+ T)	CD8+ T cell
ID57, CD27+CCR7+ of CD45RA- memory CD8+ T cells (Central memory CD8+ T)	central memory CD8+ T cell

ID58, CD27-CCR7- of CD45RA- memory CD8+ T cells (Effector memory CD8+ T)	effector memory CD8+ T cell
ID59, CD25hi FoxP3+ of CD4+ T cells (Treg)	regulatory T cell
ID64, CD14+ of viable CD45+ cells (Total Monocytes)	monocyte
ID65, CD40+ of total monocytes	monocyte
ID66, CD83+ of total monocytes	monocyte
ID67, CD86+ of total monocytes	monocyte
ID68, HLA-DR+ of total monocytes	monocyte
ID69, TNFa+ of total monocytes	monocyte
ID7, CD69+ of CD4+ T cells	CD4+ T cell
ID70, HLA-DR+ of Lin-CD45+ (Total Dendritic cells)	dendritic cell
ID71, TNFa+ of total DCs	dendritic cell
ID72, INFa+ of total DCs	dendritic cell
ID73, CD11c+CD123- of total DCs (Myeloid DCs)	myeloid dendritic cell
ID74, TNFa+ of mDCs	myeloid dendritic cell
ID75, IFNa+ of mDCs	myeloid dendritic cell
ID76, CD11c-CD123+ of total DCs (Plasmacytoid DCs)	plasmacytoid dendritic cell
ID77, TNFa+ of pDCs	plasmacytoid dendritic cell
ID78, INFa+ of pDCs	plasmacytoid dendritic cell
ID79, CD11c+CD123+ of total DCs	dendritic cell
ID8, CD25+ of CD4+ T cells	CD4+ T cell
ID80, CD19+ of viable CD45+ (Total B cells)	B cell
ID81, CD80+ of CD20+ B cells (CD80+ activated mature B)	mature B cell
ID82, CD86+ of CD20+ B cells (CD86+ activated mature B)	mature B cell
ID83, IgA+ of CD20+ B cells (IgA+ mature B)	mature B cell
ID84, IgG+ of CD20+ B cells (IgG+ mature B)	mature B cell
ID85, IgM+IgD+ of CD20+ B cells (IgM+IgD+ mature B)	mature B cell
ID86, IgM-IgD- of CD20+ B cells (IgM-IgD- mature B)	mature B cell
ID87, CD27hi CD38hi of CD20- B cells (Plasmablasts)	plasmablast
ID89, CD21+ of plasmablasts	plasmablast
ID9, CD38+ of CD4+ T cells	CD4+ T cell
ID90, CD10+CD27- of CD20+ B cells (Transitional B)	transitional B cell
ID91, CD38+ of transitional B cells	transitional B cell

ID93, CD21+ of transitional B cells	transitional B cell
ID94, IgD-CD27+ of CD20+ B cells* (IgD-CD27+ memory B)	IgD- memory B cell
ID95, CD23+ of IgD-CD27+ memory B cells	IgD- memory B cell
ID96, CD38+ of IgD-CD27+ memory B cells*	IgD- memory B cell
ID97, CD80+ of IgD-CD27+ memory B cells	IgD- memory B cell
ID98, CD86+ of IgD-CD27+ memory B cells	IgD- memory B cell
ID99, IgA+ of IgD-CD27+ memory B cells	IgD- memory B cell
IFN-g	cell
IFN-g Ki-67 negative	cell
IFN-g Ki-67 positive	cell
IFNg or IL2 + CD4 T-cells	CD4+ T cell
IFNg or IL2 + CD56dim NK cells	NK cell
IFNg or IL2 + CD56hi NK cells	NK cell
IFNg or IL2 + CD8 T-cells	CD8+ T cell
IFNg or IL2 + gd T-cells	gamma-delta T cell
IFNg or IL2 + NK T-cells	NK cell
IFNg+ CD4 T-cells	CD4+ T cell
IFNg+ CD56dim NK cells	NK cell
IFNg+ CD56hi NK cells	NK cell
IFNg+ CD8 T-cells	CD8+ T cell
IFNg+ gd T-cells	gamma-delta T cell
IFNg+ NK T-cells	NK cell
IgD+ memory B cell	memory B cell
IgD+CD27+ B cells	B cell
IgD+CD27- B cells	B cell
IgD- CD27- B cell	B cell
IgD-CD27+ B cells	B cell
IgD-CD27- B cells	B cell
IgDn_memory_B	IgD- memory B cell
IgDnCD27n_abs	B cell
IgDnCD27n_CD86p_abs	B cell
IgDnCD27p_abs	B cell
IgDnCD27p_CD86p_abs	B cell
IgDp_memory_B	memory B cell
IgDpCD27p_abs	B cell
IgDpCD27p_CD86p_abs	B cell
IL-2	cell
IL-2 Ki-67 negative	cell
IL-2 Ki-67 positive	cell

IL10+ CD4 T-cells	CD4+ T cell
IL10+ CD56dim NK cells	NK cell
IL10+ CD56hi NK cells	NK cell
IL10+ CD8 T-cells	CD8+ T cell
IL10+ gd T-cells	gamma-delta T cell
IL10+ NK T-cells	NK cell
IL13+ CD4 T-cells	CD4+ T cell
IL13+ CD56dim NK cells	NK cell
IL13+ CD56hi NK cells	NK cell
IL13+ CD8 T-cells	CD8+ T cell
IL13+ gd T-cells	gamma-delta T cell
IL13+ NK T-cells	NK cell
IL17+ CD4 T-cells	CD4+ T cell
IL17+ CD56dim NK cells	NK cell
IL17+ CD56hi NK cells	NK cell
IL17+ CD8 T-cells	CD8+ T cell
IL17+ gd T-cells	gamma-delta T cell
IL17+ NK T-cells	NK cell
IL2+ CD4 T-cells	CD4+ T cell
IL2+ CD56dim NK cells	NK cell
IL2+ CD56hi NK cells	NK cell
IL2+ CD8 T-cells	CD8+ T cell
IL2+ gd T-cells	gamma-delta T cell
IL2+ NK T-cells	NK cell
IL2+Interferon gamma+ T cells	T cell
IL2+Interferon gamma- T cells	T cell
IL2+Perforin+ T cells	T cell
IL2+Perforin- T cells	T cell
IL2-Interferon gamma+ T cells	T cell
IL2-Interferon gamma- T cells	T cell
IL2-Perforin+ T cells	T cell
IL2-Perforin- T cells	T cell
IL4+ CD4 T-cells	CD4+ T cell
IL4+ CD56dim NK cells	NK cell
IL4+ CD56hi NK cells	NK cell
IL4+ CD8 T-cells	CD8+ T cell
IL4+ gd T-cells	gamma-delta T cell
IL4+ NK T-cells	NK cell
Intact cells	cell
Intact singlets	cell
Interferon gamma+Perforin+ T cells	T cell
Interferon gamma+Perforin- T cells	T cell

Interferon gamma-Perforin+ T cells	T cell
Interferon gamma-Perforin- T cells	T cell
Ki-67	cell
KI67+ B cell	B cell
KI67+ CD4+ T cell	CD4+ T cell
KI67+ CD8+ T cell	CD8+ T cell
KI67+ central memory CD4+ T cell	central memory CD4+ T cell
KI67+ central memory CD8+ T cell	central memory CD8+ T cell
KI67+ effector memory CD4+ T cell	effector memory CD4+ T cell
KI67+ effector memory CD8+ T cell	effector memory CD8+ T cell
KI67+ naive CD4+ T cell	naive T cell
KI67+ naive CD8+ T cell	naive T cell
Ki67_pCD4	CD4+ T cell
Ki67_pCD8	CD8+ T cell
Ki67nBcl2bri_pCD4	CD4+ T cell
Ki67nBcl2bri_pCD8	CD8+ T cell
Ki67nBcl2dim_pCD4	CD4+ T cell
Ki67nBcl2dim_pCD8	CD8+ T cell
Ki67pBcl2bri_pCD4	CD4+ T cell
Ki67pBcl2bri_pCD8	CD8+ T cell
Ki67pBcl2dim_pCD4	CD4+ T cell
Ki67pBcl2dim_pCD8	CD8+ T cell
leukocyte-platelet aggregates	leukocyte, platelet
leukocytes out of live cells	leukocyte
live	cell
Live cells	cell
Live cells/CD4 T cells	CD4+ T cell
Live cells/CD4 T cells/CD4+ CD45RA+	CD4+ T cell
Live cells/CD4 T cells/CD4+ CD45RA+/Infected	CD4+ T cell
Live cells/CD4 T cells/CD4+ CD45RA+/Infected/SSC high	CD4+ T cell
Live cells/CD4 T cells/CD4+ CD45RA+/Infected/SSC low	CD4+ T cell
Live cells/CD4 T cells/CD4+ CD45RA+/Uninfected	CD4+ T cell
Live cells/CD4 T cells/CD4+ CD45RA+/Uninfected/SSC high	CD4+ T cell
Live cells/CD4 T cells/CD4+ CD45RA+/Uninfected/SSC low	CD4+ T cell
Live cells/CD4 T cells/CD4+ CD45RA-	CD4+ T cell
Live cells/CD4 T cells/CD4+ CD45RA-/Infected	CD4+ T cell
Live cells/CD4 T cells/CD4+ CD45RA-/Infected/SSC high	CD4+ T cell

Live cells/CD4 T cells/CD4+ CD45RA-/Infected/SSC low	CD4+ T cell
Live cells/CD4 T cells/CD4+ CD45RA-/Uninfected	CD4+ T cell
Live cells/CD4 T cells/CD4+ CD45RA-/Uninfected/SSC high	CD4+ T cell
Live cells/CD4 T cells/CD4+ CD45RA-/Uninfected/SSC low	CD4+ T cell
Live cells/CD8 T cells	CD8+ T cell
Live cells/CD8 T cells/CD8+ CD45RA+	CD8+ T cell
Live cells/CD8 T cells/CD8+ CD45RA+/Infected	CD8+ T cell
Live cells/CD8 T cells/CD8+ CD45RA+/Uninfected	CD8+ T cell
Live cells/CD8 T cells/CD8+ CD45RA-	CD8+ T cell
Live cells/CD8 T cells/CD8+ CD45RA-/Infected	CD8+ T cell
Live cells/CD8 T cells/CD8+ CD45RA-/Uninfected	CD8+ T cell
Live cells/Non T cells	cell
Live cells/Non T cells/B cells	B cell
Live cells/Non T cells/B cells/Infected	B cell
Live cells/Non T cells/B cells/Uninfected	B cell
Live cells/Non T cells/Monocytes	monocyte
Live cells/Non T cells/Monocytes/Infected	monocyte
Live cells/Non T cells/Monocytes/Uninfected	monocyte
Live cells/Non T cells/Other cells	cell
Live cells/Non T cells/Other cells/Infected	cell
Live cells/Non T cells/Other cells/Infected/SSC high	cell
Live cells/Non T cells/Other cells/Infected/SSC low	cell
Live cells/Non T cells/Other cells/Uninfected	cell
Live cells/Non T cells/Other cells/Uninfected/SSC high	cell
Live cells/Non T cells/Other cells/Uninfected/SSC low	cell
Live cells/Total infected cells	cell
Live Lymphocytes	lymphocyte
live platelets out of total platelets	platelet
live-cells	cell
lymphocytes	lymphocyte
Lymphocytes by FSC SSC	lymphocyte
lymphocytes out of leukocytes	lymphocyte
lymphocytes/live	lymphocyte

lymphocytes/live/CD3+CD4+	CD4+ T cell
lymphocytes/liveCD3+CD4+	CD4+ T cell
Marginal zonal B cells	marginal zone B cell
Mature B cells	mature B cell
mDC	myeloid dendritic cell
mDC_abs	myeloid dendritic cell
mDC_CD2n	myeloid dendritic cell
mDC_CD2n_abs	myeloid dendritic cell
mDC_CD2p	myeloid dendritic cell
mDC_CD2p_abs	myeloid dendritic cell
mDC_CD40n	myeloid dendritic cell
mDC_CD40p	myeloid dendritic cell
mDC_CD86n	myeloid dendritic cell
mDC_CD86n_abs	myeloid dendritic cell
mDC_CD86p	myeloid dendritic cell
mDC_CD86p_abs	myeloid dendritic cell
mDCs	myeloid dendritic cell
mDCs among CD19+/CD14+	myeloid dendritic cell
Memory B cell,Freq. of,Q2: CD19+, CD20+	memory B cell
memory B cells	memory B cell
mo	monocyte
Mo_abs	monocyte
Mo_CD40p_abs	monocyte
Mo_SLAN_abs	monocyte
Mono: pSTAT1	monocyte
Mono: pSTAT3	monocyte
Mono: pSTAT5	monocyte
monocytes	monocyte
monocytes out of leukocytes	monocyte
Naive B cell,Freq. of,Q2: CD19+, CD20+	naive B cell
naive B cells	naive B cell
Naive CD4 T cells	naive T cell
naive CD4+ T cell	naive T cell
naive CD4+ T cells	naive T cell
Naive CD8 T cells	naive T cell
naive CD8+ T cell	naive T cell
naive CD8+ T cells	naive T cell
naive thymus-derived CD8-positive, alpha-beta T cell	naive CD8+ T cell
naive_abs	cell
naive_B	naive B cell
Naive_CD4	naive T cell
Naive_CD8	naive T cell

naive_CD86p_abs	cell
neu_abs	neutrophil
Neutros	neutrophil
NK	NK cell
NK cells	NK cell
NK T-cells	NK T cell
NK_CD27	NK cell
NK_CD38	NK cell
NKT cells	NK cell
Non BT: pSTAT1	cell
Non BT: pSTAT3	cell
Non BT: pSTAT5	cell
non-leukocytes out of live cells	cell
non-naive CD4+ T cells	CD4+ T cell
non-naive CD8+ T cells	CD8+ T cell
non-T lymphocytes	cell
Non-Tfh	cell
non-TFH CD4+ T cells	CD4+ T cell
non-TFH CD8+ T cells	CD8+ T cell
nonB-nonT-nonmonocyte-nonbasophils	cell
nonbasophils	cell
nonmonocyte-nonbasophils	cell
nonNK-nonB-nonT-nonmonocyte-nonbasophils	cell
nonTFH_CD4	CD4+ T cell
not the preferred cell pop name	cell
not the preferred cell pop name natural killer cell	NK cell
NP CD49a+	cell
NP tetramer	cell
PA CD49a+	cell
PA tetramer	cell
PB	cell
PB_abs	cell
PB_CD86	cell
PB_CD86_abs	cell
PD-1+ CD4+ T cell	CD4+ T cell
PD-1+ CD8+ T cell	CD8+ T cell
PD-1+ central memory CD4+ T cell	central memory CD4+ T cell
PD-1+ central memory CD8+ T cell	central memory CD8+ T cell
PD-1+ effector memory CD4+ T cell	effector memory CD4+ T cell
PD-1+ effector memory CD8+ T cell	effector memory CD8+ T cell
PD-1+ naive CD4+ T cell	naive T cell

PD-1+ naive CD8+ T cell	naive T cell
PD1+ B cell	B cell
PD1+CD4+ T cells	CD4+ T cell
PD1+CD8+ T cells	CD8+ T cell
PD1-CD4+ T cells	CD4+ T cell
PD1-CD8+ T cells	CD8+ T cell
pDC	plasmacytoid dendritic cell
pDC_abs	plasmacytoid dendritic cell
pDC_CD2n	plasmacytoid dendritic cell
pDC_CD2n_abs	plasmacytoid dendritic cell
pDC_CD2p	plasmacytoid dendritic cell
pDC_CD2p_abs	plasmacytoid dendritic cell
pDC_CD40n	plasmacytoid dendritic cell
pDC_CD40p	plasmacytoid dendritic cell
pDC_CD86n	plasmacytoid dendritic cell
pDC_CD86n_abs	plasmacytoid dendritic cell
pDC_CD86p	plasmacytoid dendritic cell
pDC_CD86p_abs	plasmacytoid dendritic cell
pDCs	plasmacytoid dendritic cell
Plasma cells,Freq. of,B lym CD27+	plasma cell
Plasmablast + Plasma Cells Abs#	plasmablast
Plasmablast,Freq. of,Q3: CD19+, CD20-	plasmablast
Plasmablast_PC	plasmablast
plasmablasts	plasmablast
Plasmacell	plasmablast
platelet-aggregated monocytes	monocyte
platelet-aggregated neutrophils	neutrophil
pMDs among CD19+/CD14+	plasmacytoid dendritic cell
possible reticulocyte progenitors out of live cells	reticulocyte
Pre CD4	cell
Pre CD8	cell
Q2: CD19+,, CD20+,Freq. of,B lym CD19+	B cell
Q3: CD19+,, CD20-,Freq. of,B lym CD19+	B cell
QC10_CM_pCD8	central memory CD8+ T cell
QC11_Naive_pCD8	naive T cell
QC12_EM_pCD8	effector memory CD8+ T cell
QC14_TEFF_pCD8	effector CD8+ T cell
QC2_CD4_pLY	CD4+ T cell
QC3_CD8_pLY	CD8+ T cell
QC4_CD4_pLY	CD4+ T cell
QC5_CM_pCD4	central memory CD4+ T cell
QC6_Naive_pCD4	naive T cell

QC7_EM_pCD4	effector memory CD4+ T cell
QC8_TEFF_pCD4	effector CD4+ T cell
QC9_CD8_pLY	CD8+ T cell
QC_CD4	CD4+ T cell
QCGran	granulocyte
QCGran_abs	granulocyte
R10:Auto-/Auto+/Auto-/Auto-/Auto-	cell
R10:CD11C-/CD80+/CD3,56,19,14-/HLADR-/CD123-	cell
R10:CD11C-/CD86+/CD3,56,19,14-/HLADR-/CD123-	cell
R10:CD1c-/IgD+/CD27-/CD19-/IgM-	cell
R10:CD45RA-/CD45RO+/CD8-/CD4-/CD62L-	cell
R10:CD57-/CD56+/CD8-/CD3-/CD14-	cell
R10:CD8-/CD25+/CD4-/CD3-/CD62L-	cell
R10:CD8-/CD69+/CD4-/CD3-/HLADR-	cell
R10:EMA-/EMA+/EMA-/EMA-/EMA-	cell
R10:HLADR-/CD80+/CD27-/CD19-/CD86-	cell
R10:IgG1-/IgG1+/IgG1-/IgG1-/IgG1-	cell
R11:Auto+/Auto+/Auto-/Auto-/Auto-	cell
R11:CD11C+/CD80+/CD3,56,19,14-/HLADR-/CD123-	cell
R11:CD11C+/CD86+/CD3,56,19,14-/HLADR-/CD123-	cell
R11:CD1c+/IgD+/CD27-/CD19-/IgM-	cell
R11:CD45RA+/CD45RO+/CD8-/CD4-/CD62L-	cell
R11:CD57+/CD56+/CD8-/CD3-/CD14-	cell
R11:CD8+/CD25+/CD4-/CD3-/CD62L-	cell
R11:CD8+/CD69+/CD4-/CD3-/HLADR-	cell
R11:EMA+/EMA+/EMA-/EMA-/EMA-	cell
R11:HLADR+/CD80+/CD27-/CD19-/CD86-	cell
R11:IgG1+/IgG1+/IgG1-/IgG1-/IgG1-	cell
R12:Auto-/Auto-/Auto+/Auto-/Auto-	cell
R12:CD11C-/CD80-/CD3,56,19,14+/HLADR-/CD123-	cell
R12:CD11C-/CD86-/CD3,56,19,14+/HLADR-/CD123-	cell
R12:CD1c-/IgD-/CD27+/CD19-/IgM-	cell
R12:CD45RA-/CD45RO-/CD8+/CD4-/CD62L-	cell
R12:CD57-/CD56-/CD8+/CD3-/CD14-	cell
R12:CD8-/CD25-/CD4+/CD3-/CD62L-	cell
R12:CD8-/CD69-/CD4+/CD3-/HLADR-	cell

R12:EMA-/EMA-/EMA+/EMA-/EMA-	cell
R12:HLADR-/CD80-/CD27+/CD19-/CD86-	cell
R12:IgG1-/IgG1-/IgG1+/IgG1-/IgG1-	cell
R13:Auto+/Auto-/Auto+/Auto-/Auto-	cell
R13:CD11C+/CD80-/CD3,56,19,14+/HLADR-/CD123-	cell
R13:CD11C+/CD86-/CD3,56,19,14+/HLADR-/CD123-	cell
R13:CD1c+/IgD-/CD27+/CD19-/IgM-	cell
R13:CD45RA+/CD45RO-/CD8+/CD4-/CD62L-	cell
R13:CD57+/CD56-/CD8+/CD3-/CD14-	cell
R13:CD8+/CD25-/CD4+/CD3-/CD62L-	cell
R13:CD8+/CD69-/CD4+/CD3-/HLADR-	cell
R13:EMA+/EMA-/EMA+/EMA-/EMA-	cell
R13:HLADR+/CD80-/CD27+/CD19-/CD86-	cell
R13:IgG1+/IgG1-/IgG1+/IgG1-/IgG1-	cell
R14:Auto-/Auto+/Auto+/Auto-/Auto-	cell
R14:CD11C-/CD80+/CD3,56,19,14+/HLADR-/CD123-	cell
R14:CD11C-/CD86+/CD3,56,19,14+/HLADR-/CD123-	cell
R14:CD1c-/IgD+/CD27+/CD19-/IgM-	cell
R14:CD45RA-/CD45RO+/CD8+/CD4-/CD62L-	cell
R14:CD57-/CD56+/CD8+/CD3-/CD14-	cell
R14:CD8-/CD25+/CD4+/CD3-/CD62L-	cell
R14:CD8-/CD69+/CD4+/CD3-/HLADR-	cell
R14:EMA-/EMA+/EMA+/EMA-/EMA-	cell
R14:HLADR-/CD80+/CD27+/CD19-/CD86-	cell
R14:IgG1-/IgG1+/IgG1+/IgG1-/IgG1-	cell
R15:Auto+/Auto+/Auto+/Auto-/Auto-	cell
R15:CD11C+/CD80+/CD3,56,19,14+/HLADR-/CD123-	cell
R15:CD11C+/CD86+/CD3,56,19,14+/HLADR-/CD123-	cell
R15:CD1c+/IgD+/CD27+/CD19-/IgM-	cell
R15:CD45RA+/CD45RO+/CD8+/CD4-/CD62L-	cell
R15:CD57+/CD56+/CD8+/CD3-/CD14-	cell
R15:CD8+/CD25+/CD4+/CD3-/CD62L-	cell
R15:CD8+/CD69+/CD4+/CD3-/HLADR-	cell
R15:EMA+/EMA+/EMA+/EMA-/EMA-	cell
R15:HLADR+/CD80+/CD27+/CD19-/CD86-	cell
R15:IgG1+/IgG1+/IgG1+/IgG1-/IgG1-	cell

R16:Auto-/Auto-/Auto-/Auto+/Auto-	cell
R16:CD11C-/CD80-/CD3,56,19,14-/HLADR+/CD123-	cell
R16:CD11C-/CD86-/CD3,56,19,14-/HLADR+/CD123-	cell
R16:CD1c-/IgD-/CD27-/CD19+/IgM-	cell
R16:CD45RA-/CD45RO-/CD8-/CD4+/CD62L-	cell
R16:CD57-/CD56-/CD8-/CD3+/CD14-	cell
R16:CD8-/CD25-/CD4-/CD3+/CD62L-	cell
R16:CD8-/CD69-/CD4-/CD3+/HLADR-	cell
R16:EMA-/EMA-/EMA-/EMA+/EMA-	cell
R16:HLADR-/CD80-/CD27-/CD19+/CD86-	cell
R16:IgG1-/IgG1-/IgG1-/IgG1+/IgG1-	cell
R17:Auto+/Auto-/Auto-/Auto+/Auto-	cell
R17:CD11C+/CD80-/CD3,56,19,14-/HLADR+/CD123-	cell
R17:CD11C+/CD86-/CD3,56,19,14-/HLADR+/CD123-	cell
R17:CD1c+/IgD-/CD27-/CD19+/IgM-	cell
R17:CD45RA+/CD45RO-/CD8-/CD4+/CD62L-	cell
R17:CD57+/CD56-/CD8-/CD3+/CD14-	cell
R17:CD8+/CD25-/CD4-/CD3+/CD62L-	cell
R17:CD8+/CD69-/CD4-/CD3+/HLADR-	cell
R17:EMA+/EMA-/EMA-/EMA+/EMA-	cell
R17:HLADR+/CD80-/CD27-/CD19+/CD86-	cell
R17:IgG1+/IgG1-/IgG1-/IgG1+/IgG1-	cell
R18:Auto-/Auto+/Auto-/Auto+/Auto-	cell
R18:CD11C-/CD80+/CD3,56,19,14-/HLADR+/CD123-	cell
R18:CD11C-/CD86+/CD3,56,19,14-/HLADR+/CD123-	cell
R18:CD1c-/IgD+/CD27-/CD19+/IgM-	cell
R18:CD45RA-/CD45RO+/CD8-/CD4+/CD62L-	cell
R18:CD57-/CD56+/CD8-/CD3+/CD14-	cell
R18:CD8-/CD25+/CD4-/CD3+/CD62L-	cell
R18:CD8-/CD69+/CD4-/CD3+/HLADR-	cell
R18:EMA-/EMA+/EMA-/EMA+/EMA-	cell
R18:HLADR-/CD80+/CD27-/CD19+/CD86-	cell
R18:IgG1-/IgG1+/IgG1-/IgG1+/IgG1-	cell
R19:Auto+/Auto+/Auto-/Auto+/Auto-	cell
R19:CD11C+/CD80+/CD3,56,19,14-/HLADR+/CD123-	cell

R19:CD11C+/CD86+/CD3,56,19,14-/HLADR+/CD123-	cell
R19:CD1c+/IgD+/CD27-/CD19+/IgM-	cell
R19:CD45RA+/CD45RO+/CD8-/CD4+/CD62L-	cell
R19:CD57+/CD56+/CD8-/CD3+/CD14-	cell
R19:CD8+/CD25+/CD4-/CD3+/CD62L-	cell
R19:CD8+/CD69+/CD4-/CD3+/HLADR-	cell
R19:EMA+/EMA+/EMA-/EMA+/EMA-	cell
R19:HLADR+/CD80+/CD27-/CD19+/CD86-	cell
R19:IgG1+/IgG1+/IgG1-/IgG1+/IgG1-	cell
R20:Auto-/Auto-/Auto+/Auto+/Auto-	cell
R20:CD11C-/CD80-/CD3,56,19,14+/HLADR+/CD123-	cell
R20:CD11C-/CD86-/CD3,56,19,14+/HLADR+/CD123-	cell
R20:CD1c-/IgD-/CD27+/CD19+/IgM-	cell
R20:CD45RA-/CD45RO-/CD8+/CD4+/CD62L-	cell
R20:CD57-/CD56-/CD8+/CD3+/CD14-	cell
R20:CD8-/CD25-/CD4+/CD3+/CD62L-	cell
R20:CD8-/CD69-/CD4+/CD3+/HLADR-	cell
R20:EMA-/EMA-/EMA+/EMA+/EMA-	cell
R20:HLADR-/CD80-/CD27+/CD19+/CD86-	cell
R20:IgG1-/IgG1-/IgG1+/IgG1+/IgG1-	cell
R21:Auto+/Auto-/Auto+/Auto+/Auto-	cell
R21:CD11C+/CD80-/CD3,56,19,14+/HLADR+/CD123-	cell
R21:CD11C+/CD86-/CD3,56,19,14+/HLADR+/CD123-	cell
R21:CD1c+/IgD-/CD27+/CD19+/IgM-	cell
R21:CD45RA+/CD45RO-/CD8+/CD4+/CD62L-	cell
R21:CD57+/CD56-/CD8+/CD3+/CD14-	cell
R21:CD8+/CD25-/CD4+/CD3+/CD62L-	cell
R21:CD8+/CD69-/CD4+/CD3+/HLADR-	cell
R21:EMA+/EMA-/EMA+/EMA+/EMA-	cell
R21:HLADR+/CD80-/CD27+/CD19+/CD86-	cell
R21:IgG1+/IgG1-/IgG1+/IgG1+/IgG1-	cell
R22:Auto-/Auto+/Auto+/Auto+/Auto-	cell
R22:CD11C-/CD80+/CD3,56,19,14+/HLADR+/CD123-	cell
R22:CD11C-/CD86+/CD3,56,19,14+/HLADR+/CD123-	cell

R22:CD1c-/IgD+/CD27+/CD19+/IgM-	cell
R22:CD45RA-/CD45RO+/CD8+/CD4+/CD62L-	cell
R22:CD57-/CD56+/CD8+/CD3+/CD14-	cell
R22:CD8-/CD25+/CD4+/CD3+/CD62L-	cell
R22:CD8-/CD69+/CD4+/CD3+/HLADR-	cell
R22:EMA-/EMA+/EMA+/EMA+/EMA-	cell
R22:HLADR-/CD80+/CD27+/CD19+/CD86-	cell
R22:IgG1-/IgG1+/IgG1+/IgG1+/IgG1-	cell
R23:Auto+/Auto+/Auto+/Auto+/Auto-	cell
R23:CD11C+/CD80+/CD3,56,19,14+/HLADR+/CD123-	cell
R23:CD11C+/CD86+/CD3,56,19,14+/HLADR+/CD123-	cell
R23:CD1c+/IgD+/CD27+/CD19+/IgM-	cell
R23:CD45RA+/CD45RO+/CD8+/CD4+/CD62L-	cell
R23:CD57+/CD56+/CD8+/CD3+/CD14-	cell
R23:CD8+/CD25+/CD4+/CD3+/CD62L-	cell
R23:CD8+/CD69+/CD4+/CD3+/HLADR-	cell
R23:EMA+/EMA+/EMA+/EMA+/EMA-	cell
R23:HLADR+/CD80+/CD27+/CD19+/CD86-	cell
R23:IgG1+/IgG1+/IgG1+/IgG1+/IgG1-	cell
R24:Auto-/Auto-/Auto-/Auto-/Auto+	cell
R24:CD11C-/CD80-/CD3,56,19,14-/HLADR-/CD123+	cell
R24:CD11C-/CD86-/CD3,56,19,14-/HLADR-/CD123+	cell
R24:CD1c-/IgD-/CD27-/CD19-/IgM+	cell
R24:CD45RA-/CD45RO-/CD8-/CD4-/CD62L+	cell
R24:CD57-/CD56-/CD8-/CD3-/CD14+	cell
R24:CD8-/CD25-/CD4-/CD3-/CD62L+	cell
R24:CD8-/CD69-/CD4-/CD3-/HLADR+	cell
R24:EMA-/EMA-/EMA-/EMA-/EMA+	cell
R24:HLADR-/CD80-/CD27-/CD19-/CD86+	cell
R24:IgG1-/IgG1-/IgG1-/IgG1-/IgG1+	cell
R25:Auto+/Auto-/Auto-/Auto-/Auto+	cell
R25:CD11C+/CD80-/CD3,56,19,14-/HLADR-/CD123+	cell
R25:CD11C+/CD86-/CD3,56,19,14-/HLADR-/CD123+	cell
R25:CD1c+/IgD-/CD27-/CD19-/IgM+	cell

R25:CD45RA+/CD45RO-/CD8-/CD4-/CD62L+	cell
R25:CD57+/CD56-/CD8-/CD3-/CD14+	cell
R25:CD8+/CD25-/CD4-/CD3-/CD62L+	cell
R25:CD8+/CD69-/CD4-/CD3-/HLADR+	cell
R25:EMA+/EMA-/EMA-/EMA-/EMA+	cell
R25:HLADR+/CD80-/CD27-/CD19-/CD86+	cell
R25:IgG1+/IgG1-/IgG1-/IgG1-/IgG1+	cell
R26:Auto-/Auto+/Auto-/Auto-/Auto+	cell
R26:CD11C-/CD80+/CD3,56,19,14-/HLADR-/CD123+	cell
R26:CD11C-/CD86+/CD3,56,19,14-/HLADR-/CD123+	cell
R26:CD1c-/IgD+/CD27-/CD19-/IgM+	cell
R26:CD45RA-/CD45RO+/CD8-/CD4-/CD62L+	cell
R26:CD57-/CD56+/CD8-/CD3-/CD14+	cell
R26:CD8-/CD25+/CD4-/CD3-/CD62L+	cell
R26:CD8-/CD69+/CD4-/CD3-/HLADR+	cell
R26:EMA-/EMA+/EMA-/EMA-/EMA+	cell
R26:HLADR-/CD80+/CD27-/CD19-/CD86+	cell
R26:IgG1-/IgG1+/IgG1-/IgG1-/IgG1+	cell
R27:Auto+/Auto+/Auto-/Auto-/Auto+	cell
R27:CD11C+/CD80+/CD3,56,19,14-/HLADR-/CD123+	cell
R27:CD11C+/CD86+/CD3,56,19,14-/HLADR-/CD123+	cell
R27:CD1c+/IgD+/CD27-/CD19-/IgM+	cell
R27:CD45RA+/CD45RO+/CD8-/CD4-/CD62L+	cell
R27:CD57+/CD56+/CD8-/CD3-/CD14+	cell
R27:CD8+/CD25+/CD4-/CD3-/CD62L+	cell
R27:CD8+/CD69+/CD4-/CD3-/HLADR+	cell
R27:EMA+/EMA+/EMA-/EMA-/EMA+	cell
R27:HLADR+/CD80+/CD27-/CD19-/CD86+	cell
R27:IgG1+/IgG1+/IgG1-/IgG1-/IgG1+	cell
R28:Auto-/Auto-/Auto+/Auto-/Auto+	cell
R28:CD11C-/CD80-/CD3,56,19,14+/HLADR-/CD123+	cell
R28:CD11C-/CD86-/CD3,56,19,14+/HLADR-/CD123+	cell
R28:CD1c-/IgD-/CD27+/CD19-/IgM+	cell
R28:CD45RA-/CD45RO-/CD8+/CD4-/CD62L+	cell
R28:CD57-/CD56-/CD8+/CD3-/CD14+	cell

R28:CD8-/CD25-/CD4+/CD3-/CD62L+	cell
R28:CD8-/CD69-/CD4+/CD3-/HLADR+	cell
R28:EMA-/EMA-/EMA+/EMA-/EMA+	cell
R28:HLADR-/CD80-/CD27+/CD19-/CD86+	cell
R28:IgG1-/IgG1-/IgG1+/IgG1-/IgG1+	cell
R29:Auto+/Auto-/Auto+/Auto-/Auto+	cell
R29:CD11C+/CD80-/CD3,56,19,14+/HLADR-/CD123+	cell
R29:CD11C+/CD86-/CD3,56,19,14+/HLADR-/CD123+	cell
R29:CD1c+/IgD-/CD27+/CD19-/IgM+	cell
R29:CD45RA+/CD45RO-/CD8+/CD4-/CD62L+	cell
R29:CD57+/CD56-/CD8+/CD3-/CD14+	cell
R29:CD8+/CD25-/CD4+/CD3-/CD62L+	cell
R29:CD8+/CD69-/CD4+/CD3-/HLADR+	cell
R29:EMA+/EMA-/EMA+/EMA-/EMA+	cell
R29:HLADR+/CD80-/CD27+/CD19-/CD86+	cell
R29:IgG1+/IgG1-/IgG1+/IgG1-/IgG1+	cell
R30:Auto-/Auto+/Auto+/Auto-/Auto+	cell
R30:CD11C-/CD80+/CD3,56,19,14+/HLADR-/CD123+	cell
R30:CD11C-/CD86+/CD3,56,19,14+/HLADR-/CD123+	cell
R30:CD1c-/IgD+/CD27+/CD19-/IgM+	cell
R30:CD45RA-/CD45RO+/CD8+/CD4-/CD62L+	cell
R30:CD57-/CD56+/CD8+/CD3-/CD14+	cell
R30:CD8-/CD25+/CD4+/CD3-/CD62L+	cell
R30:CD8-/CD69+/CD4+/CD3-/HLADR+	cell
R30:EMA-/EMA+/EMA+/EMA-/EMA+	cell
R30:HLADR-/CD80+/CD27+/CD19-/CD86+	cell
R30:IgG1-/IgG1+/IgG1+/IgG1-/IgG1+	cell
R31:Auto+/Auto+/Auto+/Auto-/Auto+	cell
R31:CD11C+/CD80+/CD3,56,19,14+/HLADR-/CD123+	cell
R31:CD11C+/CD86+/CD3,56,19,14+/HLADR-/CD123+	cell
R31:CD1c+/IgD+/CD27+/CD19-/IgM+	cell
R31:CD45RA+/CD45RO+/CD8+/CD4-/CD62L+	cell
R31:CD57+/CD56+/CD8+/CD3-/CD14+	cell
R31:CD8+/CD25+/CD4+/CD3-/CD62L+	cell
R31:CD8+/CD69+/CD4+/CD3-/HLADR+	cell

R31:EMA+/EMA+/EMA+/EMA-/EMA+	cell
R31:HLADR+/CD80+/CD27+/CD19-/CD86+	cell
R31:IgG1+/IgG1+/IgG1+/IgG1-/IgG1+	cell
R32:Auto-/Auto-/Auto-/Auto+/Auto+	cell
R32:CD11C-/CD80-/CD3,56,19,14-/HLADR+/CD123+	cell
R32:CD11C-/CD86-/CD3,56,19,14-/HLADR+/CD123+	cell
R32:CD1c-/IgD-/CD27-/CD19+/IgM+	cell
R32:CD45RA-/CD45RO-/CD8-/CD4+/CD62L+	cell
R32:CD57-/CD56-/CD8-/CD3+/CD14+	cell
R32:CD8-/CD25-/CD4-/CD3+/CD62L+	cell
R32:CD8-/CD69-/CD4-/CD3+/HLADR+	cell
R32:EMA-/EMA-/EMA-/EMA+/EMA+	cell
R32:HLADR-/CD80-/CD27-/CD19+/CD86+	cell
R32:IgG1-/IgG1-/IgG1-/IgG1+/IgG1+	cell
R33:Auto+/Auto-/Auto-/Auto+/Auto+	cell
R33:CD11C+/CD80-/CD3,56,19,14-/HLADR+/CD123+	cell
R33:CD11C+/CD86-/CD3,56,19,14-/HLADR+/CD123+	cell
R33:CD1c+/IgD-/CD27-/CD19+/IgM+	cell
R33:CD45RA+/CD45RO-/CD8-/CD4+/CD62L+	cell
R33:CD57+/CD56-/CD8-/CD3+/CD14+	cell
R33:CD8+/CD25-/CD4-/CD3+/CD62L+	cell
R33:CD8+/CD69-/CD4-/CD3+/HLADR+	cell
R33:EMA+/EMA-/EMA-/EMA+/EMA+	cell
R33:HLADR+/CD80-/CD27-/CD19+/CD86+	cell
R33:IgG1+/IgG1-/IgG1-/IgG1+/IgG1+	cell
R34:Auto-/Auto+/Auto-/Auto+/Auto+	cell
R34:CD11C-/CD80+/CD3,56,19,14-/HLADR+/CD123+	cell
R34:CD11C-/CD86+/CD3,56,19,14-/HLADR+/CD123+	cell
R34:CD1c-/IgD+/CD27-/CD19+/IgM+	cell
R34:CD45RA-/CD45RO+/CD8-/CD4+/CD62L+	cell
R34:CD57-/CD56+/CD8-/CD3+/CD14+	cell
R34:CD8-/CD25+/CD4-/CD3+/CD62L+	cell
R34:CD8-/CD69+/CD4-/CD3+/HLADR+	cell
R34:EMA-/EMA+/EMA-/EMA+/EMA+	cell

R34:HLADR-/CD80+/CD27-/CD19+/CD86+	cell
R34:IgG1-/IgG1+/IgG1-/IgG1+/IgG1+	cell
R35:Auto+/Auto+/Auto-/Auto+/Auto+	cell
R35:CD11C+/CD80+/CD3,56,19,14-/HLADR+/CD123+	cell
R35:CD11C+/CD86+/CD3,56,19,14-/HLADR+/CD123+	cell
R35:CD1c+/IgD+/CD27-/CD19+/IgM+	cell
R35:CD45RA+/CD45RO+/CD8-/CD4+/CD62L+	cell
R35:CD57+/CD56+/CD8-/CD3+/CD14+	cell
R35:CD8+/CD25+/CD4-/CD3+/CD62L+	cell
R35:CD8+/CD69+/CD4-/CD3+/HLADR+	cell
R35:EMA+/EMA+/EMA-/EMA+/EMA+	cell
R35:HLADR+/CD80+/CD27-/CD19+/CD86+	cell
R35:IgG1+/IgG1+/IgG1-/IgG1+/IgG1+	cell
R36:Auto-/Auto-/Auto+/Auto+/Auto+	cell
R36:CD11C-/CD80-/CD3,56,19,14+/HLADR+/CD123+	cell
R36:CD11C-/CD86-/CD3,56,19,14+/HLADR+/CD123+	cell
R36:CD1c-/IgD-/CD27+/CD19+/IgM+	cell
R36:CD45RA-/CD45RO-/CD8+/CD4+/CD62L+	cell
R36:CD57-/CD56-/CD8+/CD3+/CD14+	cell
R36:CD8-/CD25-/CD4+/CD3+/CD62L+	cell
R36:CD8-/CD69-/CD4+/CD3+/HLADR+	cell
R36:EMA-/EMA-/EMA+/EMA+/EMA+	cell
R36:HLADR-/CD80-/CD27+/CD19+/CD86+	cell
R36:IgG1-/IgG1-/IgG1+/IgG1+/IgG1+	cell
R37:Auto+/Auto-/Auto+/Auto+/Auto+	cell
R37:CD11C+/CD80-/CD3,56,19,14+/HLADR+/CD123+	cell
R37:CD11C+/CD86-/CD3,56,19,14+/HLADR+/CD123+	cell
R37:CD1c+/IgD-/CD27+/CD19+/IgM+	cell
R37:CD45RA+/CD45RO-/CD8+/CD4+/CD62L+	cell
R37:CD57+/CD56-/CD8+/CD3+/CD14+	cell
R37:CD8+/CD25-/CD4+/CD3+/CD62L+	cell
R37:CD8+/CD69-/CD4+/CD3+/HLADR+	cell
R37:EMA+/EMA-/EMA+/EMA+/EMA+	cell
R37:HLADR+/CD80-/CD27+/CD19+/CD86+	cell

R37:IgG1+/IgG1-/IgG1+/IgG1+/IgG1+	cell
R38:Auto-/Auto+/Auto+/Auto+/Auto+	cell
R38:CD11C-/CD80+/CD3,56,19,14+/HLADR+/CD123+	cell
R38:CD11C-/CD86+/CD3,56,19,14+/HLADR+/CD123+	cell
R38:CD1c-/IgD+/CD27+/CD19+/IgM+	cell
R38:CD45RA-/CD45RO+/CD8+/CD4+/CD62L+	cell
R38:CD57-/CD56+/CD8+/CD3+/CD14+	cell
R38:CD8-/CD25+/CD4+/CD3+/CD62L+	cell
R38:CD8-/CD69+/CD4+/CD3+/HLADR+	cell
R38:EMA-/EMA+/EMA+/EMA+/EMA+	cell
R38:HLADR-/CD80+/CD27+/CD19+/CD86+	cell
R38:IgG1-/IgG1+/IgG1+/IgG1+/IgG1+	cell
R39:Auto+/Auto+/Auto+/Auto+/Auto+	cell
R39:CD11C+/CD80+/CD3,56,19,14+/HLADR+/CD123+	cell
R39:CD11C+/CD86+/CD3,56,19,14+/HLADR+/CD123+	cell
R39:CD1c+/IgD+/CD27+/CD19+/IgM+	cell
R39:CD45RA+/CD45RO+/CD8+/CD4+/CD62L+	cell
R39:CD57+/CD56+/CD8+/CD3+/CD14+	cell
R39:CD8+/CD25+/CD4+/CD3+/CD62L+	cell
R39:CD8+/CD69+/CD4+/CD3+/HLADR+	cell
R39:EMA+/EMA+/EMA+/EMA+/EMA+	cell
R39:HLADR+/CD80+/CD27+/CD19+/CD86+	cell
R39:IgG1+/IgG1+/IgG1+/IgG1+/IgG1+	cell
R8 :Auto-/Auto-/Auto-/Auto-/Auto-	cell
R8 :CD11C-/CD80-/CD3,56,19,14-/HLADR-/CD123-	cell
R8 :CD11C-/CD86-/CD3,56,19,14-/HLADR-/CD123-	cell
R8 :CD1c-/IgD-/CD27-/CD19-/IgM-	cell
R8 :CD45RA-/CD45RO-/CD8-/CD4-/CD62L-	cell
R8 :CD57-/CD56-/CD8-/CD3-/CD14-	cell
R8 :CD8-/CD25-/CD4-/CD3-/CD62L-	cell
R8 :CD8-/CD69-/CD4-/CD3-/HLADR-	cell
R8 :EMA-/EMA-/EMA-/EMA-/EMA-	cell
R8 :HLADR-/CD80-/CD27-/CD19-/CD86-	cell
R8 :IgG1-/IgG1-/IgG1-/IgG1-/IgG1-	cell
R9 :Auto+/Auto-/Auto-/Auto-/Auto-	cell

R9 :CD11C+/CD80-/CD3,56,19,14-/HLADR-/CD123-	cell
R9 :CD11C+/CD86-/CD3,56,19,14-/HLADR-/CD123-	cell
R9 :CD1c+/IgD-/CD27-/CD19-/IgM-	cell
R9 :CD45RA+/CD45RO-/CD8-/CD4-/CD62L-	cell
R9 :CD57+/CD56-/CD8-/CD3-/CD14-	cell
R9 :CD8+/CD25-/CD4-/CD3-/CD62L-	cell
R9 :CD8+/CD69-/CD4-/CD3-/HLADR-	cell
R9 :EMA+/EMA-/EMA-/EMA-/EMA-	cell
R9 :HLADR+/CD80-/CD27-/CD19-/CD86-	cell
R9 :IgG1+/IgG1-/IgG1-/IgG1-/IgG1-	cell
reticulocytes out of live cells	reticulocyte
single cells	cell
single leukocytes	leukocyte
single monocytes	monocyte
single neutrophils	neutrophil
single non-leukocytes out of live cells	cell
Singlets	cell
Slan	cell
SLAN+ CD16+ monocyte	monocyte
SLAN+ CD16- monocyte	monocyte
SLAN+ monocyte	monocyte
SLAN- CD16+ monocyte	monocyte
SLAN- CD16- monocyte	monocyte
switched memory B cell	class switched memory B cell
T cells	T cell
T follicular helper cell type 1	Th1 CD4+ T cell
T follicular helper cell type 17	Th17 CD4+ T cell
T follicular helper cell type 2	non-Th1/Th17 CD4+ T cell
T helper cell	helper T cell
T-cells	T cell
T-cells out of leukocytes	T cell
T2_CD19_abs	cell
T2_CD19_CD27_abs	cell
T2_CD19_CD86_abs	cell
T2_CD19p_CD20n_abs	cell
T2_CD19p_CD20n_CD86_abs	cell
T2_CD19p_CD20p_abs	cell
T2_CD19p_CD20p_CD86_abs	cell
T2_CD27n_IgDn_abs	cell
T2_CD27n_IgDn_CD86_abs	cell

T2_CD27n_IgDp_abs	cell
T2_CD27n_IgDp_CD86_abs	cell
T2_CD27p_IgDn_abs	cell
T2_CD27p_IgDn_CD86_abs	cell
T2_CD27p_IgDp_abs	cell
T2_CD27p_IgDp_CD86_abs	cell
T2_PB_abs	cell
T2_PB_CD138_abs	cell
T2_PB_CD138_CD86_abs	cell
T2_PB_CD86_abs	cell
T2_trans_abs	cell
T2_trans_CD86_abs	cell
T3_Eos_abs	eosinophil
T3_Mono_abs	monocyte
T3_Mono_CD11b_abs	monocyte
T3_Mono_CD14nCD16n_abs	monocyte
T3_Mono_CD14nCD16p_abs	monocyte
T3_Mono_CD14nCD16p_CD11b_abs	monocyte
T3_Mono_CD14nCD16p_CD2_abs	monocyte
T3_Mono_CD14nCD16p_CD40_abs	monocyte
T3_Mono_CD14nCD16p_CD86_abs	monocyte
T3_Mono_CD14nCD16p_CX3CR1_abs	monocyte
T3_Mono_CD14nCD16p_DR_abs	monocyte
T3_Mono_CD14pCD16n_abs	monocyte
T3_Mono_CD14pCD16n_CD11b_abs	monocyte
T3_Mono_CD14pCD16n_CD2_abs	monocyte
T3_Mono_CD14pCD16n_CD40_abs	monocyte
T3_Mono_CD14pCD16n_CD86_abs	monocyte
T3_Mono_CD14pCD16n_CX3CR1_abs	monocyte
T3_Mono_CD14pCD16n_DR_abs	monocyte
T3_Mono_CD14pCD16p_abs	monocyte
T3_Mono_CD14pCD16p_CD11b_abs	monocyte
T3_Mono_CD14pCD16p_CD2_abs	monocyte
T3_Mono_CD14pCD16p_CD40_abs	monocyte
T3_Mono_CD14pCD16p_CD86_abs	monocyte
T3_Mono_CD14pCD16p_CX3CR1_abs	monocyte
T3_Mono_CD14pCD16p_DR_abs	monocyte
T3_Mono_CD2_abs	monocyte
T3_Mono_CD40_abs	monocyte
T3_Mono_CD86_abs	monocyte
T3_Mono_CX3CR1_abs	monocyte
T3_Mono_DR_abs	monocyte

T3_Neu_abs	neutrophil
T3_Neu_CD16nCD11bn_abs	neutrophil
T3_Neu_CD16nCD11bp_abs	neutrophil
T3_Neu_CD16pCD11bn_abs	neutrophil
T3_Neu_CD16pCD11bp_abs	neutrophil
T3_Slan_abs	cell
T3_Slan_CD11b_abs	cell
T3_Slan_CD2_abs	cell
T3_Slan_CD40_abs	cell
T3_Slan_CD86_abs	cell
T3_Slan_CX3CR1_abs	cell
T3_Slan_DR_abs	cell
T4_BDCA2_abs	cell
T4_BDCA2p_CD2p_abs	cell
T4_BDCA2p_CD86p_abs	cell
T4_BDCA3_abs	cell
T4_CD11c_abs	cell
T4_CD11cp_CD2p_abs	cell
T4_CD11cp_CD86p_abs	cell
T4_CD1c_abs	cell
T4_CD1cp_CD2p_abs	cell
T4_CD1cp_CD86p_abs	cell
T5_CD3_abs	T cell
T5_CD4_abs	CD4+ T cell
T5_CD4_ICOSp_abs	CD4+ T cell
T5_CD8_abs	CD8+ T cell
T5_CD8_ICOSp_abs	CD8+ T cell
T5_TFH17_abs	Th17 CD4+ T cell
T5_TFH17_ICOSp_abs	Th17 CD4+ T cell
T5_TFH1_17_abs	T follicular helper cell
T5_TFH1_17_ICOSp_abs	T follicular helper cell
T5_TFH1_abs	Th1 CD4+ T cell
T5_TFH1_ICOSp_abs	Th1 CD4+ T cell
T5_TFH2_abs	non-Th1/Th17 CD4+ T cell
T5_TFH2_ICOSp_abs	non-Th1/Th17 CD4+ T cell
T5_TFH_abs	T follicular helper cell
T5_TFH_ICOSp_abs	T follicular helper cell
T5_TH17_abs	Th17 CD4+ T cell
T5_TH17_ICOSp_abs	Th17 CD4+ T cell
T5_TH1_17_abs	CD4-positive helper T cell
T5_TH1_17_ICOSp_abs	CD4-positive helper T cell
T5_TH1_abs	Th1 CD4+ T cell

T5_TH1_ICOSp_abs	Th1 CD4+ T cell
T5_TH2_abs	non-Th1/Th17 CD4+ T cell
T5_TH2_ICOSp_abs	non-Th1/Th17 CD4+ T cell
T5_TH_abs	CD4-positive helper T cell
T5_TH_ICOSp_abs	CD4-positive helper T cell
T6B_CD127loCD25hi_abs	cell
T6B_CD127loCD25hi_CLAnCD62Ln_abs	cell
T6B_CD127loCD25hi_CLAnCD62Lp_abs	cell
T6B_CD127loCD25hi_CLApCD62Ln_abs	cell
T6B_CD127loCD25hi_CLApCD62Lp_abs	cell
T6B_CD127loCD25hi_DR_abs	cell
T6B_CD3nCD56_abs	cell
T6B_CD3nCD56_CD127nCD25n_abs	cell
T6B_CD3nCD56_CD127nCD25p_abs	cell
T6B_CD3nCD56_CD127pCD25n_abs	cell
T6B_CD3nCD56_CD127pCD25p_abs	cell
T6B_CD3nCD56_CLAnCD62Ln_abs	cell
T6B_CD3nCD56_CLAnCD62Lp_abs	cell
T6B_CD3nCD56_CLApCD62Ln_abs	cell
T6B_CD3nCD56_CLApCD62Lp_abs	cell
T6B_CD3nCD56_DR_abs	cell
T6B_CD3nCD56bri_abs	cell
T6B_CD3nCD56bri_CD127nCD25n_abs	cell
T6B_CD3nCD56bri_CD127nCD25p_abs	cell
T6B_CD3nCD56bri_CD127pCD25n_abs	cell
T6B_CD3nCD56bri_CD127pCD25p_abs	cell
T6B_CD3nCD56bri_CLAnCD62Ln_abs	cell
T6B_CD3nCD56bri_CLAnCD62Lp_abs	cell
T6B_CD3nCD56bri_CLApCD62Ln_abs	cell
T6B_CD3nCD56bri_CLApCD62Lp_abs	cell
T6B_CD3nCD56bri_DR_abs	cell
T6B_CD3nCD56dim_abs	cell
T6B_CD3nCD56dim_CD127nCD25n_abs	cell
T6B_CD3nCD56dim_CD127nCD25p_abs	cell
T6B_CD3nCD56dim_CD127pCD25n_abs	cell
T6B_CD3nCD56dim_CD127pCD25p_abs	cell
T6B_CD3nCD56dim_CLAnCD62Ln_abs	cell
T6B_CD3nCD56dim_CLAnCD62Lp_abs	cell
T6B_CD3nCD56dim_CLApCD62Ln_abs	cell
T6B_CD3nCD56dim_CLApCD62Lp_abs	cell
T6B_CD3nCD56dim_DR_abs	cell
T6B_CD3p_abs	T cell

T6B_CD4_abs	CD4+ T cell
T6B_CD4_CLAnCD62Ln_abs	CD4+ T cell
T6B_CD4_CLAnCD62Lp_abs	CD4+ T cell
T6B_CD4_CLApCD62Ln_abs	CD4+ T cell
T6B_CD4_CLApCD62Lp_abs	CD4+ T cell
T6B_CD4_DR_abs	CD4+ T cell
T6B_NKT_abs	NK T cell
T6B_NKT_CD127nCD25n_abs	NK T cell
T6B_NKT_CD127nCD25p_abs	NK T cell
T6B_NKT_CD127pCD25n_abs	NK T cell
T6B_NKT_CD127pCD25p_abs	NK T cell
T6B_NKT_CLAnCD62Ln_abs	NK T cell
T6B_NKT_CLAnCD62Lp_abs	NK T cell
T6B_NKT_CLApCD62Ln_abs	NK T cell
T6B_NKT_CLApCD62Lp_abs	NK T cell
T6B_NKT_DR_abs	NK T cell
T7_CD4_abs	CD4+ T cell
T7_CD4_CCR4_abs	CD4+ T cell
T7_CD4_CCR6nCD161n_abs	CD4+ T cell
T7_CD4_CCR6nCD161p_abs	CD4+ T cell
T7_CD4_CCR6pCD161n_abs	CD4+ T cell
T7_CD4_CCR6pCD161p_abs	CD4+ T cell
T7_CD4_CD161_abs	CD4+ T cell
T7_CD4_CLA_abs	CD4+ T cell
T7_TFH17_abs	Th17 CD4+ T cell
T7_TFH17_CCR4_abs	Th17 CD4+ T cell
T7_TFH17_CD161_abs	Th17 CD4+ T cell
T7_TFH17_CLA_abs	Th17 CD4+ T cell
T7_TFH1_17_CCR4_abs	T follicular helper cell
T7_TFH1_17_CD161_abs	T follicular helper cell
T7_TFH1_17_CLA_abs	T follicular helper cell
T7_TFH1_7_abs	T follicular helper cell
T7_TFH1_abs	Th1 CD4+ T cell
T7_TFH1_CCR4_abs	Th1 CD4+ T cell
T7_TFH1_CD161_abs	Th1 CD4+ T cell
T7_TFH1_CLA_abs	Th1 CD4+ T cell
T7_TFH2_abs	non-Th1/Th17 CD4+ T cell
T7_TFH2_CCR4_abs	non-Th1/Th17 CD4+ T cell
T7_TFH2_CD161_abs	non-Th1/Th17 CD4+ T cell
T7_TFH2_CLA_abs	non-Th1/Th17 CD4+ T cell
T7_TFH_abs	T follicular helper cell
T7_TFH_CCR4_abs	T follicular helper cell

T7_TFH_CCR6nCD161n_abs	T follicular helper cell
T7_TFH_CCR6nCD161p_abs	T follicular helper cell
T7_TFH_CCR6pCD161n_abs	T follicular helper cell
T7_TFH_CCR6pCD161p_abs	T follicular helper cell
T7_TFH_CD161_abs	T follicular helper cell
T7_TFH_CD161_CCR4_abs	T follicular helper cell
T7_TFH_CD161_CD161_abs	T follicular helper cell
T7_TFH_CD161_CLA_abs	T follicular helper cell
T7_TFH_CLA_abs	T follicular helper cell
T7_TH17_abs	Th17 CD4+ T cell
T7_TH17_CCR4_abs	Th17 CD4+ T cell
T7_TH17_CD161_abs	Th17 CD4+ T cell
T7_TH17_CLA_abs	Th17 CD4+ T cell
T7_TH1_17_CCR4_abs	CD4-positive helper T cell
T7_TH1_17_CD161_abs	CD4-positive helper T cell
T7_TH1_17_CLA_abs	CD4-positive helper T cell
T7_TH1_7_abs	CD4-positive helper T cell
T7_TH1_abs	Th1 CD4+ T cell
T7_TH1_CCR4_abs	Th1 CD4+ T cell
T7_TH1_CD161_abs	Th1 CD4+ T cell
T7_TH1_CLA_abs	Th1 CD4+ T cell
T7_TH2_abs	non-Th1/Th17 CD4+ T cell
T7_TH2_CCR4_abs	non-Th1/Th17 CD4+ T cell
T7_TH2_CD161_abs	non-Th1/Th17 CD4+ T cell
T7_TH2_CLA_abs	non-Th1/Th17 CD4+ T cell
T7_TH_abs	CD4-positive helper T cell
T7_TH_CCR4_abs	CD4-positive helper T cell
T7_TH_CCR6nCD161n_abs	CD4-positive helper T cell
T7_TH_CCR6nCD161p_abs	CD4-positive helper T cell
T7_TH_CCR6pCD161n_abs	CD4-positive helper T cell
T7_TH_CCR6pCD161p_abs	CD4-positive helper T cell
T7_TH_CD161_abs	CD4-positive helper T cell
T7_TH_CLA_abs	CD4-positive helper T cell
T9_CD19_abs	cell
T9_CD19_CCR9p_abs	cell
T9_CD19_CLA_abs	cell
T9_CD19_DR_abs	cell
T9_CD19_Ki67_abs	cell
T9_CD3_abs	T cell
T9_CD3_CCR9p_abs	T cell
T9_CD3_CLA_abs	T cell
T9_CD3_DR_abs	T cell

T9_CD3_Ki67_abs	T cell
T9_CD3dp_abs	T cell
T9_CD3dp_CLA_abs	T cell
T9_CD3dp_DR_abs	T cell
T9_CD3dp_Ki67_abs	T cell
T9_CD3pDN_abs	T cell
T9_CD3pDN_CCR9p_abs	T cell
T9_CD3pDN_CLA_abs	T cell
T9_CD3pDN_DR_abs	T cell
T9_CD3pDN_Ki67_abs	T cell
T9_CD4_abs	CD4+ T cell
T9_CD4_CCR9p_abs	CD4+ T cell
T9_CD4_CLA_abs	CD4+ T cell
T9_CD4_DR_abs	CD4+ T cell
T9_CD4_Ki67_abs	CD4+ T cell
T9_CD8_abs	CD8+ T cell
T9_CD8_CCR9p_abs	CD8+ T cell
T9_CD8_CLA_abs	CD8+ T cell
T9_CD8_DR_abs	CD8+ T cell
T9_CD8_Ki67_abs	CD8+ T cell
T9_NK_abs	NK cell
T9_NK_CCR9p_abs	NK cell
T9_NK_CLA_abs	NK cell
T9_NK_DR_abs	NK cell
T9_NK_Ki67_abs	NK cell
T9_NKT_abs	NK T cell
T9_NKT_CCR9p_abs	NK T cell
T9_NKT_CLA_abs	NK T cell
T9_NKT_DR_abs	NK T cell
T9_NKT_Ki67_abs	NK T cell
T9_TFH_abs	T follicular helper cell
T9_TFH_CCR9p_abs	T follicular helper cell
T9_TFH_CLA_abs	T follicular helper cell
T9_TFH_DR_abs	T follicular helper cell
T9_TFH_Ki67_abs	T follicular helper cell
Tcm CD4 T cells	central memory CD4+ T cell
Tcm CD8 T cells	central memory CD8+ T cell
TEFF_CD4	effector CD4+ T cell
TEFF_CD8	effector CD8+ T cell
Tem CD4 T cells	effector memory CD4+ T cell
Tem CD8 T cells	effector memory CD8+ T cell
Temra CD4 T cells	effector memory CD4+ T cell

Temra CD8 T cells	effector memory CD8+ T cell
Tet+ CD8+	CD8+ T cell
Tfh	T follicular helper cell
TFH CD4+ T cells	T follicular helper cell
TFH CD8+ T cells	T follicular helper cell
Tfh cell	T follicular helper cell
TFH1	Th1 CD4+ T cell
Tfh1 CD4+ T cell	Th1 CD4+ T cell
Tfh1/17 CD4+ T cell	T follicular helper cell
TFH17	Th17 CD4+ T cell
Tfh17 CD4+ T cell	Th17 CD4+ T cell
TFH17_abs	Th17 CD4+ T cell
TFH17_DR	Th17 CD4+ T cell
TFH17_ICOS	Th17 CD4+ T cell
TFH17_ICOSp	Th17 CD4+ T cell
TFH17_ICOSp_abs	Th17 CD4+ T cell
TFH1_17	T follicular helper cell
TFH1_17_abs	T follicular helper cell
TFH1_17_DR	T follicular helper cell
TFH1_17_ICOS	T follicular helper cell
TFH1_17_ICOSp_abs	T follicular helper cell
TFH1_abs	Th1 CD4+ T cell
TFH1_DR	Th1 CD4+ T cell
TFH1_ICOS	Th1 CD4+ T cell
TFH1_ICOSp_abs	Th1 CD4+ T cell
TFH2	non-Th1/Th17 CD4+ T cell
Tfh2 CD4+ T cell	non-Th1/Th17 CD4+ T cell
TFH2_abs	non-Th1/Th17 CD4+ T cell
TFH2_DR	non-Th1/Th17 CD4+ T cell
TFH2_ICOS	non-Th1/Th17 CD4+ T cell
TFH2_ICOSp_abs	non-Th1/Th17 CD4+ T cell
TFH_abs	T follicular helper cell
TFH_DR	T follicular helper cell
TFH_ICOS	T follicular helper cell
TFH_ICOSp_abs	T follicular helper cell
TH	helper T cell
TH1	Th1 CD4+ T cell
Th1 non-TFH CD4+ T cells	Th1 CD4+ T cell
Th1 non-TFH CD8+ T cells	Th1 CD4+ T cell
Th1 TFH CD4+ T cells	Th1 CD4+ T cell
Th1 TFH CD8+ T cells	Th1 CD4+ T cell
Th1/17 CD4+ T cell	helper T cell

TH17	Th17 CD4+ T cell
Th17 non-TFH CD4+ T cells	Th17 CD4+ T cell
Th17 non-TFH CD8+ T cells	Th17 CD4+ T cell
Th17 TFH CD4+ T cells	Th17 CD4+ T cell
Th17 TFH CD8+ T cells	Th17 CD4+ T cell
TH17_abs	Th17 CD4+ T cell
TH17_DR	Th17 CD4+ T cell
TH17_ICOS	Th17 CD4+ T cell
TH17_ICOSp_abs	Th17 CD4+ T cell
TH1_17	helper T cell
TH1_17_abs	helper T cell
TH1_17_DR	helper T cell
TH1_17_ICOS	helper T cell
TH1_17_ICOSp_abs	helper T cell
TH1_abs	Th1 CD4+ T cell
TH1_DR	Th1 CD4+ T cell
TH1_ICOS	Th1 CD4+ T cell
TH1_ICOSp_abs	Th1 CD4+ T cell
TH1_nonTFH	Th1 CD4+ T cell
TH2	non-Th1/Th17 CD4+ T cell
Th2 CD4+ T cell	non-Th1/Th17 CD4+ T cell
Th2 non-TFH CD4+ T cells	non-Th1/Th17 CD4+ T cell
Th2 non-TFH CD8+ T cells	non-Th1/Th17 CD4+ T cell
Th2 TFH CD4+ T cells	non-Th1/Th17 CD4+ T cell
Th2 TFH CD8+ T cells	non-Th1/Th17 CD4+ T cell
TH2_abs	non-Th1/Th17 CD4+ T cell
TH2_DR	non-Th1/Th17 CD4+ T cell
TH2_ICOS	non-Th1/Th17 CD4+ T cell
TH2_ICOSp_abs	non-Th1/Th17 CD4+ T cell
TH_abs	helper T cell
TH_DR	helper T cell
TH_ICOS	helper T cell
TH_ICOSp_abs	helper T cell
Time exclusion	cell
tissue-like memory B cell	memory B cell
TNF-a	cell
TNF-a Ki-67 negative	cell
TNF-a Ki-67 positive	cell
TNFa+ CD4 T-cells	CD4+ T cell
TNFa+ CD56dim NK cells	NK cell
TNFa+ CD56hi NK cells	NK cell
TNFa+ CD8 T-cells	CD8+ T cell

TNFa+ gd T-cells	gamma-delta T cell
TNFa+ NK T-cells	NK T cell
Total B cells (CD19)	B cell
Total Cells	cell
total monocytes	monocyte
total neutrophils	neutrophil
traditional T cell	T cell
trans_abs	transitional B cell
trans_CD86p_abs	transitional B cell
Transition B cell,Freq. of,Q2: CD19+, CD20+	transitional B cell
transitional B cells	transitional B cell
Transitional type 1 or T1 immature B cells	T1 B cell
Transitional type 2 or T2 immature B cells	T2 B cell
transitionalb_	transitional B cell
Tregs	regulatory T cell
Tumor necrosis factor alpha+Interferon gamma+ T cells	T cell
Tumor necrosis factor alpha+Interferon gamma- T cells	T cell
Tumor necrosis factor alpha+Perforin+ T cells	T cell
Tumor necrosis factor alpha+Perforin- T cells	T cell
Tumor necrosis factor alpha-Interferon gamma+ T cells	T cell
Tumor necrosis factor alpha-Interferon gamma- T cells	T cell
Tumor necrosis factor alpha-Perforin+ T cells	T cell
Tumor necrosis factor alpha-Perforin- T cells	T cell
viable	cell
viable/singlets	cell
Viable/Singlets/Lymph	lymphocyte
Viable/Singlets/Lymph/CD3+	T cell
Viable/Singlets/Lymph/CD3+/CD4+	CD4+ T cell
Viable/Singlets/Lymph/CD3+/CD8+	CD8+ T cell
Viable/Singlets/Lymphs	lymphocyte
Viable/Singlets/Lymphs/CD3+	T cell
Viable/Singlets/Lymphs/CD3+/CD3+ CD56+	T cell
Viable/Singlets/Lymphs/CD3+/CD4+	CD4+ T cell
Viable/Singlets/Lymphs/CD3+/CD4+/CD27+	CD4+ T cell

Viable/Singlets/Lymphs/CD3+/CD4+/CD28+	CD4+ T cell
Viable/Singlets/Lymphs/CD3+/CD4+/Q1: CD45RAD, CD27+	CD4+ T cell
Viable/Singlets/Lymphs/CD3+/CD4+/Q2: CD45RA+, CD27+	CD4+ T cell
Viable/Singlets/Lymphs/CD3+/CD4+/Q3: CD45RA+, CD27D	CD4+ T cell
Viable/Singlets/Lymphs/CD3+/CD4+/Q4: CD45RAD, CD27D	CD4+ T cell
Viable/Singlets/Lymphs/CD3+/CD8+	CD8+ T cell
Viable/Singlets/Lymphs/CD3+/CD8+/CD27+	CD8+ T cell
Viable/Singlets/Lymphs/CD3+/CD8+/CD28+	CD8+ T cell
Viable/Singlets/Lymphs/CD3+/CD8+/Q1: CD45RAD, CD27+	CD8+ T cell
Viable/Singlets/Lymphs/CD3+/CD8+/Q3: CD45RA+, CD27D	CD8+ T cell
Viable/Singlets/Lymphs/CD3+/CD8+/Q4: CD45RAD, CD27D	CD8+ T cell
Viable/Singlets/Lymphs/CD3+/TCRgd	gamma-delta T cell
Viable/Singlets/Lymphs/CD3-	lymphocyte
Viable/Singlets/Lymphs/CD3-/B cells	B cell
Viable/Singlets/Monocytes	monocyte
Viable/Singlets/Monocytes/CD33+	monocyte

13. **lk_compound_role**

Name	Description	Link
Concomitant Medication	Compound Role is Concomitant Medication.	http://purl.obolibrary.org/obo/NCIT_C49568
Intervention	Compound Role is Intervention.	http://www.ebi.ac.uk/efo/EFO_0002571
Other	Compound Role is Other.	
Substance Use	Compound Role is Substance Use.	http://purl.bioontology.org/ontology/MEDDRA/10070964

14. **lk_concentration_unit**

Name	Description	Link

concentration_unit_preferred		
AFU	Arbitrary Fluorescence Units	http://purl.obolibrary.org/obo/NCIT_C77534
AI	Antibody Index	https://www.aacc.org/publications/cln/articles/2014/june/ana-testing
AU/ml	Unit of measure of potency of allergenic product expressed as a number of allergy units per one milliliter of formulation.	http://purl.obolibrary.org/obo/NCIT_C70504
cells/kg body weight	Cells per kg body weight	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4138781/
CFU/ml	A derived unit of viable cell concentration defined as the number of colony forming units in one milliliter of substance	http://purl.obolibrary.org/obo/NCIT_C68902
DK units/ml	The NIDDK calibrators were tested together with dilutions of the WHO reference serum using harmonized assays on five occasions in the BDC, Bristol, and Munich laboratories and reported as WHO units/ml by calibration as previously described. For each of the NIDDK calibrators, the median value of the WHO units/ml obtained for the 15 measurements was assigned as its calibrator unit. The assigned units were termed digestive and kidney units (DK units)/ml.	https://repository.niddk.nih.gov/studies/aab-calibrators/
g/dl	A unit of mass concentration defined as the concentration of one gram of a substance per unit volume of the mixture equal to one deciliter (100 milliliters). The concept also refers to the metric unit of mass density (volumic mass) defined as the density of substance which mass equal to one gram occupies the volume one deciliter.	http://purl.obolibrary.org/obo/NCIT_C64783
g/l	grams per liter	http://purl.obolibrary.org/obo/UO_0000175

Gy	A SI derived unit of absorbed radiation dose. One gray is equal to an absorbed dose of one joule per kilogram of matter, or to 100 rads.	https://uts.nlm.nih.gov/uts/umls/concept/C0556636
HAU	hemagglutination units	http://en.wikipedia.org/wiki/Virus_quantification
iu/l	Unit of arbitrary substance concentration (biologic activity concentration) defined as the concentration of one international unit per one liter of the system volume.	http://purl.obolibrary.org/obo/NCIT_C67376
IU/ml	A unit of arbitrary substance concentration (biologic activity concentration) defined as the concentration of one international unit per one milliliter of system volume.	http://purl.obolibrary.org/obo/NCIT_C67377
Kallikrein Inactivator Unit per Milliliter	An arbitrary unit of a kallikrein inactivator concentration equal to the concentration at which one milliliter of the mixture contains one unit of the kallikrein inactivator.	http://purl.obolibrary.org/obo/NCIT_C73531
M	molar	http://purl.obolibrary.org/obo/UO_0000062
mg/dl	A unit of mass concentration defined as the concentration of one milligram of a substance in unit volume of the mixture equal to one cubic deciliter or 100 cubic centimeters. It is also a unit of mass density (volumic mass) defined as the density of substance which mass equal to one milligram occupies the volume one cubic deciliter or 100 cubic centimeters.	http://purl.obolibrary.org/obo/NCIT_C67015
mg/l	A metric unit of mass concentration defined as the concentration of one gram of a substance per unit volume of the mixture equal to one cubic meter. The concept also refers to the metric unit of mass density (volumic mass) defined as the density of a substance which mass equal to one gram occupies the volume of one cubic meter.	http://purl.obolibrary.org/obo/NCIT_C64572
mg/ml	microgram per milliliter	http://purl.bioontology.org/ontology/SNOMEDCT/258798001

miu/ml	Unit of arbitrary substance concentration (biologic activity concentration) defined as the concentration of one international unit per one liter of the system volume.	http://purl.obolibrary.org/obo/NCIT_C67376
mM	millimolar	http://purl.obolibrary.org/obo/UO_0000063
MOI	multiplicity of infection	http://en.wikipedia.org/wiki/Multiplicity_of_infection
ng/dl	A unit of mass concentration defined as the concentration of one nanogram of a substance per unit volume of the mixture equal to one deciliter. The concept also refers to the unit of mass density (volumic mass) defined as the density of substance which mass equal to one nanogram occupies the volume of one deciliter.	http://purl.obolibrary.org/obo/NCIT_C67326
ng/ml	nanogram per milliliter	http://purl.bioontology.org/ontology/SNOMEDCT/258806002
ng/nl	nanogram per nanoliter	
ng/ul	nanogram per microliter	http://purl.bioontology.org/ontology/SNOMEDCT/272082007
nM	nanomolar	http://purl.obolibrary.org/obo/UO_0000065
Not Specified	No value provided. Not stated explicitly or in detail.	http://purl.obolibrary.org/obo/NCIT_C38046

NPX	NPX, Normalized Protein eXpression, is Olink's arbitrary unit which is in Log2 scale. It is calculated from Ct values and data pre-processing (normalization) is performed to minimize both intra- and inter-assay variation. NPX data allows users to identify changes for individual protein levels across their sample set, and then use this data to establish protein signatures. The NPX scale is inverted compared to that of Ct. This means that a high NPX value equals a high protein concentration. Because NPX is in a log2 scale, a 1 NPX difference means a doubling of protein concentration. If needed NPX values can be converted into linear scale: 2^NPX= linear NPX.	https://www.olink.com/question/what-is-npx/
optical density	The measurement of the light transmitted through a sample for a given wavelength. [database_cross_reference: ISBN:038733341X]	http://purl.obolibrary.org/obo/CHMO_0002039
PFU	Plaque-forming unit. A measure of viable infectious entities (e.g. viral particles or group of particles) in the specimen or product defined as the smallest quantity that can produce a cytopathic effect in the host cell culture challenged with the defined inoculum, visible under the microscope and/or to the naked eye as a plaque. A number of plaque forming units (PFU) per unit volume is a conventional way to refer the titer of an infective entity in a specimen or preparation.	http://purl.obolibrary.org/obo/NCIT_C67264
PFUe	Plaque-forming unit equivalents	http://purl.obolibrary.org/obo/NCIT_C67264
pg/mg creatinine	Protein/Creatinine [Ratio] in Urine	http://purl.obolibrary.org/obo/NCIT_C85780
pg/ml	picogram per milliliter	http://purl.obolibrary.org/obo/NCIT_C67327
pg/nl	picogram per nanoliter	
pg/ul	picogram per microliter	http://purl.obolibrary.org/obo/NCIT_C67306

pM	picomolar	http://purl.obolibrary.org/obo/UO_0000066
TCID50	mean tissue culture infective dose	http://en.wikipedia.org/wiki/Virus_quantification
Thousand Cells per Microliter	A unit of cell concentration expressed as a number of cells in thousands per unit volume equal to one microliter. Synonyms: 10E3 Cells/uL, Kcells/ul.	https://uts.nlm.nih.gov/uts/umls/concept/C1883312
ug/dl	A unit of mass concentration defined as the concentration of one microgram of a substance per unit volume of the mixture equal to one deciliter. The concept also refers to the unit of mass density (volumic mass) defined as the density of substance which mass equal to one microgram occupies the volume one deciliter.	http://purl.obolibrary.org/obo/NCIT_C67305
ug/l	A unit of mass concentration defined as the concentration of one microgram of a substance per unit volume of the mixture equal to one liter. The concept also refers to the unit of mass density (volumetric mass) defined as the density of a substance which mass equal to one microgram occupies the volume of one liter.	http://purl.obolibrary.org/obo/NCIT_C67306
ug/ml	microgram per milliliter	http://purl.bioontology.org/ontology/SNOMEDCT/258801007
ug/ul	microgram per microliter	http://purl.obolibrary.org/obo/NCIT_C42576
uiu/ml	Unit of arbitrary substance concentration (biologic activity concentration) defined as the concentration of one millionth of international unit per one milliliter of system volume.	http://purl.obolibrary.org/obo/NCIT_C67405
uM	micromolar	http://purl.bioontology.org/ontology/SNOMEDCT/258814008
umol/l	A unit of concentration (molarity unit) equal to one one-millionth of a mole (10E-6 mole) of solute per one liter of solution.	http://purl.obolibrary.org/obo/NCIT_C48508

units/ml	Enzyme Unit per Milliliter. Unit of catalytic activity concentration defined as activity equal to one enzyme unit per one milliliter of system volume.	http://purl.bioontology.org/ontology/SNOMEDCT/259002007

15. **lk_contract_category**

Name	Description
NIH	NIAID Contract-Grant that will share data: ***makes Contract metadata viewable on Home page
OTHER	Other or Miscellaneous Contract or Grant

16. **lk_criterion_category**

Name	Description	Link
Exclusion	Exclusion Criterion used to evaluate whether a subject is a candidate for exclusion in a study.	http://purl.obolibrary.org/obo/NCIT_C25370
Inclusion	Inclusion Criterion used to evaluate whether a subject is a candidate for inclusion in a study.	http://purl.obolibrary.org/obo/NCIT_C25532

17. **lk_disease**

Name	Description	Link	ID
disease_preferred ; disease_ontology_id			

acquired immunodeficiency syndrome ; DOID:635	A Human immunodeficiency virus infectious disease that results_in reduction in the numbers of CD4-bearing helper T cells below 200 per microliter of blood or 14% of all lymphocytes thereby rendering the subject highly vulnerable to life-threatening infections and cancers, has_material_basis_in Human immunodeficiency virus 1 or has_material_basis_in Human immunodeficiency virus 2, which are transmitted_by sexual contact, transmitted_by transfer of blood, semen, vaginal fluid, pre-ejaculate, or breast milk, transmitted_by congenital method, and transmitted_by contaminated needles. Opportunistic infections are common in people with AIDS.	http://purl.obolibrary.org/obo/DOID_635	
acute disseminated encephalomyelitis ; DOID:639	An encephalomyelitis characterized by inflammation located in brain and located in spinal cord that damages myelin. It usually occurs after viral infection, but also following vaccination, bacterial or parasitic infection.	http://purl.obolibrary.org/obo/DOID_639	
Acute Respiratory Distress Syndrome ; C3353	Progressive and life-threatening pulmonary distress in the absence of an underlying pulmonary condition, usually following major trauma or surgery. Cases of neonatal respiratory distress syndrome are not included in this definition.	http://purl.obolibrary.org/obo/NCIT_C3353	
Addison's disease ; DOID:13774	An adrenal cortical hypofunction that is characterized by insufficient steroid hormone production by the adrenal glands.	http://purl.obolibrary.org/obo/DOID_13774	HP:0008207
Aging ; NCIT:C16269	The process of change in the structure and function of an organism that occurs with the passage of time.	http://purl.obolibrary.org/obo/NCIT_C16269	

alcohol dependence ; DOID:0050741	A substance dependence that is characterized by tolerance, withdrawal symptoms, increasing use, persistent desire to decrease consumption, time spent obtaining or recovering from alcohol caused by a physical and psychological dependence on alcohol. (UMLS CUI:C0001973)	http://purl.obolibrary.org/obo/DOID_0050741	
alcohol use disorder ; DOID:1574	A substance abuse that involves the recurring use of alcoholic beverages despite negative consequences.	http://purl.obolibrary.org/obo/DOID_1574	
allergic hypersensitivity disease ; DOID:1205	An immune system disease that is an exaggerated immune response to allergens, such as insect venom, dust mites, pollen, pet dander, drugs or some foods.	http://purl.obolibrary.org/obo/DOID_1205	HP:0012393
allergic rhinitis ; DOID:4481	A rhinitis that is an allergic inflammation and irritation of the nasal airways involving sneezing, runny nose, nasal congestion, itching and tearing of the eyes caused by exposure to an allergen such as pollen, dust, mold, animal dander and droppings of cockroaches or house dust mites.	http://purl.obolibrary.org/obo/DOID_4481	HP:0003193
alopecia areata ; DOID:986	An autoimmune disease resulting in the loss of hair on the scalp and elsewhere on the body initially causing bald spots.	http://purl.obolibrary.org/obo/DOID_986	HP:0002232

Alzheimer's disease ; DOID:10652	A tauopathy that is characterized by memory lapses, confusion, emotional instability and progressive loss of mental ability and results in progressive memory loss, impaired thinking, disorientation, and changes in personality and mood starting and leads in advanced cases to a profound decline in cognitive and physical functioning and is marked histologically by the degeneration of brain neurons especially in the cerebral cortex and by the presence of neurofibrillary tangles and plaques containing beta-amyloid.	http://purl.obolibrary.org/obo/DOID_10652	HP:0002511
anemia ; DOID:2355	A hematopoietic system disease that is characterized by a decrease in the normal number of red blood cells.	http://purl.obolibrary.org/obo/DOID_2355	HP:0001903
Angina ; NCIT:C51221	Paroxysms of chest pain due to reduced oxygen to the heart. (UMLS CUI:C0002962)	http://purl.obolibrary.org/obo/NCIT_C51221	
anthrax disease ; DOID:7427	A primary bacterial infectious disease that results_in infection located_in skin, located_in lung lymph nodes or located_in gastrointestinal tract, has_material_basis_in Bacillus anthracis, transmitted_by contact with infected animals or animal products, transmitted_by airborne spores or transmitted_by ingestion of undercooked meat from infected animals and has_symptom skin ulcer, has_symptom nausea, has_symptom poor appetite, has_symptom bloody diarrhea, has_symptom fever or has_symptom shortness of breath.	http://purl.obolibrary.org/obo/DOID_7427	

antiphospholipid syndrome ; DOID:2988	An autoimmune disease that is characterized by recurrent venous or arterial thrombosis and/or fetal losses associated with characteristic elevated levels of antibodies directed against membrane anionic phospholipids (anticardiolipin).	http://purl.obolibrary.org/obo/DOID_2988	
antisynthetase syndrome ; DOID:0080744	An autoimmune disease that is characterized by myositis, arthralgia, Raynaud phenomenon, mechanic hands, interstitial lung disease, and serum autoantibodies to aminoacyl transfer RNA synthetases.	http://purl.obolibrary.org/obo/DOID_0080744	
anxiety disorder ; DOID:2030	A cognitive disorder that involves an excessive, irrational dread of everyday situations.	http://purl.obolibrary.org/obo/DOID_2030	
arrhythmia ; SYMP:0000287	Arrhythmia is a cardiovascular system symptom consisting of an alteration in rhythm of the heartbeat either in time or force.	http://purl.obolibrary.org/obo/SYMP_0000287	
aspiration pneumonia ; DOID:0050152	A bacterial pneumonia which is an acute pulmonary inflammatory response that develops after the inhalation of colonized oropharyngeal material containing bacteria. It is seen in individuals with dysphagia and gastric dysmotility. The disease has_symptom tachypnea and has_symptom cough. (UMLS CUI:C0032290)	http://purl.obolibrary.org/obo/DOID_0050152	
asthma ; DOID:2841	A bronchial disease that is characterized by chronic inflammation and narrowing of the airways, which is caused by a combination of environmental and genetic factors. The disease has_symptom recurring periods of wheezing (a whistling sound while breathing), has_symptom chest tightness, has_symptom shortness of breath, has_symptom mucus production and has_symptom coughing.	http://purl.obolibrary.org/obo/DOID_2841	HP:0002099

atopic dermatitis ; DOID:3310	An allergic contact dermatitis that is a chronically relapsing inflammatory allergic response located_in the skin that causes itching and flaking.	http://purl.obolibrary.org/obo/DOID_3310	HP:0001047
atrial fibrillation ; DOID:0060224	A heart conduction disease that is characterized by uncoordinated electrical activity in the heart's upper chambers (the atria), which causes the heartbeat to become fast and irregular and has symptoms palpitations, weakness, fatigue, lightheadedness, dizziness, confusion, shortness of breath and chest pain. (UMLS CUI:C0004238)	http://purl.obolibrary.org/obo/DOID_0060224	
autoimmune cardiomyopathy ; DOID:0040095	An autoimmune disease of cardiovascular system that is characterized by deterioration of the function of the heart muscle.	http://purl.obolibrary.org/obo/DOID_0040095	
autoimmune cholangitis ; DOID:0080742	An autoimmune hepatitis that is characterized by primary biliary cirrhosis clinical, biochemical, and histologic characteristics with antinuclear antibody positive sera.	http://purl.obolibrary.org/obo/DOID_0080742	
autoimmune disease ; DOID:417	An immune system disease that is an overactive immune response of the body against substances and tissues normally present in the body resulting from an abnormal functioning of the immune system that results in the production of antibodies or T cell directed against the host tissues.	http://purl.obolibrary.org/obo/DOID_417	
autoimmune disease of endocrine system ; DOID:0060005	An autoimmune disease that is the abnormal functioning of the immune system resulting in production of antibodies or T cells against cells and/or tissues in the endocrine system.	http://purl.obolibrary.org/obo/DOID_0060005	

autoimmune disease of musculoskeletal system ; DOID:0060032	An autoimmune disease that is the abnormal functioning of the immune system that causes your immune system to produce antibodies or T cells against cells and/or tissues in the musculoskeletal system.	http://purl.obolibrary.org/obo/DOID_0060032	
autoimmune glomerulonephritis ; DOID:0040094	An autoimmune disease of urogenital tract that is located_in the renal glomerulus.	http://purl.obolibrary.org/obo/DOID_0040094	
autoimmune hemolytic anemia ; DOID:718	An autoimmune disease of blood that is characterized by deficient red blood cells caused by auto-antibodies.	http://purl.obolibrary.org/obo/DOID_718	HP:0001890
autoimmune hepatitis ; DOID:2048	An autoimmune disease of gastrointestinal tract that results_in inflammation located_in liver caused by the body's immune system attacking the liver cells.	http://purl.obolibrary.org/obo/DOID_2048	
autoimmune peripheral neuropathy ; DOID:0040087	An autoimmune disease of peripheral nervous system that results in peripheral neuropathy.	http://purl.obolibrary.org/obo/DOID_0040087	
autoimmune thrombocytopenic purpura ; DOID:8924	A primary thrombocytopenia that involves relatively few platelets in blood as a result of autoantibodies.	http://purl.obolibrary.org/obo/DOID_8924	HP:0001973
avian influenza ; DOID:4492	An influenza that results in infection located in respiratory tract of humans, domestic and wild birds, has_material_basis_in Influenza A virus, which is transmitted by contact with infected poultry. Five strains of avian influenza A viruses (H5N1, H7N3, H7N2, H7N7 and H9N2) are known to cause human infections. The infection has_symptom fever, has_symptom cough, has_symptom sore throat, has_symptom muscle aches, has_symptom nausea, has_symptom diarrhea, has_symptom vomiting, has_symptom neurologic changes, has_symptom pneumonia, and has_symptom acute respiratory distress.	http://purl.obolibrary.org/obo/DOID_4492	

Bariatric Surgery ; NCIT:C84399	Surgery performed in morbidly obese patients to help promote weight loss. The procedure aims at the reduction of the stomach size and it is usually achieved either with the implantation of a medical device or the removal of part of the stomach.	http://purl.obolibrary.org/obo/NCIT_C84399	
Bilateral pleural effusion (disorder) ; SNOMEDCT:425802001	Bilateral pleural effusion (disorder) (UMLS CUI:C0747635)	http://purl.bioontology.org/ontology/SNOMEDCT/425802001	
biliary atresia ; DOID:13608	A cholestasis characterized by blockage of the ducts that carry bile from the liver to the gallbladder.	http://purl.obolibrary.org/obo/DOID_13608	HP:0005912
blood coagulation disease ; DOID:1247	A hematopoietic system disease that is characterized by abnormal blood clotting or bleeding.	http://purl.obolibrary.org/obo/DOID_1247	HP:0001928
Blood Transfusion ; NCIT:C15192	The injection of whole blood or a blood component directly into the bloodstream.	http://purl.obolibrary.org/obo/NCIT_C15192	
bone development disease ; DOID:0080006	A bone disease that results_in abnormal growth and development located_in bone or located_in cartilage.	http://purl.obolibrary.org/obo/DOID_0080006	
bone disease ; DOID:0080001	A connective tissue disease that affects the structure or development of bone or causes an impairment of normal bone function.	http://purl.obolibrary.org/obo/DOID_0080001	
brain glioblastoma multiforme ; DOID:3073	A brain glioma that has_material_basis_in abnormally proliferating cells derives_from glial cells, has_symptom seizure, headaches, nausea and vomiting, memory loss, changes to personality, mood or concentration; and localized neurological problems.	http://purl.obolibrary.org/obo/DOID_3073	
brain glioma ; DOID:0060108	A brain cancer that has_material_basis_in glial cells.	http://purl.obolibrary.org/obo/DOID_0060108	

breast cancer ; DOID:1612	A thoracic cancer that originates in the mammary gland.	http://purl.obolibrary.org/obo/DOID_1612	HP:0003002
bronchiectasis ; DOID:9563	A bronchial disease that is a chronic inflammatory condition of one or more bronchi or bronchioles marked by dilatation and loss of elasticity of the walls resulting from damage to the airway wall leading to the formation of small sacs on the bronchial wall and impairment of cilia mobility in the lung. Inflammation of the bronchial wall increases mucus secretion which serves as a breeding ground for bacteria. Bronchiectasis is caused by repeated respiratory infections, immune deficiency disorders, hereditary disorders (cystic fibrosis or primary ciliary dyskinesia), mechanical factors (inhaled object or a lung tumor) or inhaling toxic substances. (UMLS CUI:C0006267)	http://purl.obolibrary.org/obo/DOID_9563	
bronchiolitis ; DOID:2942	A lung disease that is an inflammation of the bronchioles, the smallest air passages of the lungs. It is caused by viruses and bacteria. The disease has_symptom cough, has_symptom wheezing, has_symptom shortness of breath, has_symptom fever, has_symptom nasal flaring in infants and has_symptom bluish skin due to lack of oxygen.	http://purl.obolibrary.org/obo/DOID_2942	HP:0011950
bronchitis ; DOID:6132	A bronchial disease that is an inflammation of the bronchial tubes. It is caused by bacteria and viruses. The disease has_symptom cough with mucus, has_symptom shortness of breath, has_symptom low fever and has_symptom chest tightness.	http://purl.obolibrary.org/obo/DOID_6132	HP:0012387

Bronchopulmonary Dysplasia ; NCIT:C90599	Chronic lung disease requiring treatment with oxygen for at least 28 days and with a spectrum of severity from mild to severe, that predominantly affects premature infants. While the radiologic pattern is typical in the closer to term patient, the pattern in the small preterm infant is very non-discrete and variable.	http://purl.obolibrary.org/obo/NCIT_C90599	
bullous skin disease ; DOID:8502	A dermatitis that is characterized by blisters filled with a watery fluid, located_in skin. The disease is associated with the amount of gluten ingested.	http://purl.obolibrary.org/obo/DOID_8502	
cancer ; DOID:162	A disease of cellular proliferation that is malignant and primary, characterized by uncontrolled cellular proliferation, local cell invasion and metastasis.	http://purl.obolibrary.org/obo/DOID_162	HP:0002664
cardiac arrest ; DOID:0060319	A congestive heart failure characterized by a sudden stop in effective blood circulation due to the failure of the heart to contract effectively or at all.	http://purl.obolibrary.org/obo/DOID_0060319	HP:0001695
cardiomyopathy ; DOID:0050700	A heart disease and a myopathy that is characterized by deterioration of the function of the heart muscle.	http://purl.obolibrary.org/obo/DOID_0050700	HP:0001638
cardiovascular system disease ; DOID:1287	A disease of anatomical entity which occurs in the blood, heart, blood vessels or the lymphatic system that passes nutrients (such as amino acids and electrolytes), gases, hormones, blood cells or lymph to and from cells in the body to help fight diseases and help stabilize body temperature and pH to maintain homeostasis.	http://purl.obolibrary.org/obo/DOID_1287	HP:0001626

celiac disease ; DOID:10608	An autoimmune disease of gastrointestinal tract that is caused by a reaction located_in small intestine to gliadin, a prolamin (gluten protein) found in wheat, and similar proteins found in the crops of the tribe Triticeae. The disease is associated with HLA-DQ gene. It has_symptom abdominal pain, has_symptom constipation, has_symptom diarrhea, has_symptom nausea and vomiting, and has_symptom loss of appetite.	http://purl.obolibrary.org/obo/DOID_10608	HP:0002608
Cephalohematoma ; NCIT:C50484	A subperiosteal hemorrhage limited to the surface of one cranial bone, a usually benign condition seen in the newborn as a result of bone trauma.	http://purl.obolibrary.org/obo/NCIT_C50484	
cerebral palsy ; DOID:1969	A brain disease that is caused by damage to the motor control centers of the developing brain during pregnancy, during childbirth or after birth, which affects muscle movement and balance.	http://purl.obolibrary.org/obo/DOID_1969	HP:0100021
cerebrovascular disease ; DOID:6713	An vascular disease that is characterized by dysfunction of the blood vessels supplying the brain.	http://purl.obolibrary.org/obo/DOID_6713	
chickenpox ; DOID:8659	A viral infectious disease that results_in infection located_in skin, has_material_basis_in Human herpesvirus 3, which is transmitted_by direct contact with secretions from the rash, or transmitted_by droplet spread of respiratory secretions. The infection has_symptom anorexia, has_symptom myalgia, has_symptom nausea, has_symptom fever, has_symptom headache, has_symptom sore throat, and has_symptom blisters.	http://purl.obolibrary.org/obo/DOID_8659	

chikungunya ; DOID:0050012	A viral infectious disease that results_in infection located_in joint, has_material_basis_in Chikungunya virus, which is transmitted_by Aedes mosquito bite. The infection has_symptom fever, has_symptom arthralgia, and has_symptom maculopapular rash.	http://purl.obolibrary.org/obo/DOID_0050012	
childhood type dermatomyositis ; DOID:14203	childhood type dermatomyositis	http://purl.obolibrary.org/obo/DOID_14203	
chlamydia ; DOID:11263	A commensal bacterial infectious disease that is caused by Chlamydia trachomatis.	https://disease-ontology.org/?id=DOID:11263	
choledochal cyst ; DOID:899	choledochal cyst	http://purl.obolibrary.org/obo/DOID_899	HP:0100890
cholera ; DOID:1498	A primary bacterial infectious disease that is described as an acute, diarrheal illness caused by infection of the intestine with the bacterium Vibrio cholerae, which is characterized by profuse watery diarrhea, vomiting, leg cramps, circulatory collapse and shock.	http://purl.obolibrary.org/obo/DOID_1498	
chorioamnionitis ; DOID:0050697	A placenta disease that is an inflammation of the fetal membranes (amnion and chorion) due to a bacterial infection.	http://purl.obolibrary.org/obo/DOID_0050697	
chromosomal disease ; DOID:0080014	A genetic disease that has_material_basis_in extra, missing, or re-arranged chromosomes.	http://purl.obolibrary.org/obo/DOID_0080014	
chronic disease course ; OGMS:0000064	A disease course that (a) does not terminate in a return to normal homeostasis and (b) would, absent intervention, fall within abnormal homeostatic range.	http://purl.obolibrary.org/obo/OGMS_0000064	

Chronic Fatigue Syndrome ; NCIT_C3037	A syndrome of unknown etiology. Chronic fatigue syndrome (CFS) is a clinical diagnosis characterized by an unexplained persistent or relapsing chronic fatigue that is of at least six months' duration, is not the result of ongoing exertion, is not substantially alleviated by rest, and results in substantial reduction of previous levels of occupational, educational, social, or personal activities. Common concurrent symptoms of at least six months duration include impairment of memory or concentration, diffuse pain, sore throat, tender lymph nodes, headaches of a new type, pattern, or severity, and nonrestorative sleep. The etiology of CFS may be viral or immunologic. Neurasthenia and fibromyalgia may represent related disorders. Also known as myalgic encephalomyelitis.	http://purl.obolibrary.org/obo/NCIT_C3037	
chronic kidney disease ; DOID:784	A kidney failure that is characterized by the gradual loss of kidney function. (UMLS CUI:C1561643)	http://purl.obolibrary.org/obo/DOID_784	
Chronic Liver Disease ; NCIT:C113609	Hepatic necrosis, inflammation, or scarring due to any cause that persists for more than 6 months. Manifestations may include signs and symptoms of cholestasis, portal hypertension, and/or abnormal liver function tests. (UMLS CUI:C0341439)	http://purl.obolibrary.org/obo/NCIT_C113609	
chronic obstructive pulmonary disease ; DOID:3083	An obstructive lung disease that is characterized by irreversible airflow obstruction due to chronic bronchitis, emphysema, and/or small airways disease.	http://purl.obolibrary.org/obo/DOID_3083	HP:0006510

chronic plaque psoriasis ; N/A	Chronic plaque psoriasis is the most common presentation of psoriasis. It presents as small to large, well-demarcated, red, scaly and thickened areas of skin. It most likely to affect elbows, knees, and lower back but may arise on any part of the body.	https://dermnetnz.org/topics/chronic-plaque-psoriasis/	HP:0003765
Chronic Sinusitis ; NCIT:C35151	Inflammation of the paranasal sinuses that typically lasts beyond eight weeks. It is caused by infections, allergies, and the presence of sinus polyps or deviated septum. Signs and symptoms include headache, nasal discharge, swelling in the face, dizziness, and breathing difficulties. (UMLS CUI:C0149516)	http://purl.obolibrary.org/obo/NCIT_C35151	
chronic spontaneous urticaria ; DOID:0080749	A chronic urticaria that is characterized by urticaria independent of any exogenous stimulus.	http://purl.obolibrary.org/obo/DOID_0080749	
cirrhosis ; DOID:5082	liver cirrhosis	http://purl.obolibrary.org/obo/DOID_5082	
clinically isolated syndrome ; UMLS CUI:C2921627	A first neurologic episode caused by inflammation/demyelination of one or more central nervous system sites that lasts at least 24 hours. (SNOMEDCT_US)	https://uts.nlm.nih.gov/uts/umls/concept/C2921627	
Clostridium difficile colitis ; DOID:0060185	A colitis characterized by an overgrowth of Clostridium difficile bacteria.	http://purl.obolibrary.org/obo/DOID_0060185	
colitis ; DOID:0060180	An inflammatory bowel disease that involves inflammation located_in colon.	http://purl.obolibrary.org/obo/DOID_0060180	HP:0002583
colorectal cancer ; DOID:9256	A large intestine cancer that is located_in the colon and/or located_in the rectum.	http://purl.obolibrary.org/obo/DOID_9256	HP:0100834

common variable immunodeficiency ; DOID:12177	An agammaglobulinemia that is results in insufficient production of antibodies needed to respond to exposure of pathogens and is characterized by low Ig levels with phenotypically normal B cells that can proliferate but do not develop into Ig-producing cells.	http://purl.obolibrary.org/obo/DOID_12177	
congenital adrenal insufficiency ; DOID:0050546	An adrenal gland disease that is characterized by cortisol deficiency, hypoaldosteronism and excessive or insufficient sex hormones, has_material_basis_in the mutation in the gene for 21-hydroxylase, 11beta-hydroxylase, 3beta-hydroxysteroid, 17alpha-hydroxylase or 20,22-desmolase.	http://purl.obolibrary.org/obo/DOID_0050546	
congenital heart disease ; DOID:1682	congenital heart disease	http://purl.obolibrary.org/obo/DOID_1682	HP:0001627
congenital syphilis ; DOID:9856	A syphilis that results_in a multisystem infection in the fetus via the placenta.	http://purl.obolibrary.org/obo/DOID_9856	
congestive heart failure ; DOID:6000	A heart disease that is characterized by any structural or functional cardiac disorder that impairs the ability of the heart to fill with or pump a sufficient amount of blood throughout the body.	http://purl.obolibrary.org/obo/DOID_6000	HP:0001635
conjunctivitis ; DOID:6195	A conjunctival disease characterized by an inflammation of the conjunctiva, the outermost layer of the eye and the inner surface of the eyelids.	http://purl.obolibrary.org/obo/DOID_6195	HP:0000509
connective tissue disease ; DOID:65	A musculoskeletal system disease that affects tissues such as skin, tendons, and cartilage.	http://purl.obolibrary.org/obo/DOID_65	

coronary artery disease ; DOID:3393	An artery disease that is characterized by plaque building up along the inner walls of the arteries of the heart resulting in a narrowing of the arteries and a reduced blood supply to the cardiac muscles.	http://purl.obolibrary.org/obo/DOID_3393	HP:0001677
COVID-19 ; DOID:0080600	A Coronavirus infection that is characterized by fever, cough and shortness of breath and that has_material_basis_in SARS-CoV-2.	http://purl.obolibrary.org/obo/DOID_0080600	
COVID-19-Associated Acute Respiratory Distress Syndrome ; C171551	Acute respiratory distress syndrome caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)	http://purl.obolibrary.org/obo/NCIT_C171551	
cranial nerve disease ; DOID:5656	A neuropathy that is located_in one of the twelve cranial nerves.	http://purl.obolibrary.org/obo/DOID_5656	HP:0006824
critical COVID-19 ; DOID:0081012	A COVID-19 that is characterized by the criteria for acute respiratory distress syndrome (ARDS), sepsis, septic shock, or other conditions that would normally require the provision of life sustaining therapies such as mechanical ventilation (invasive or non-invasive) or vasopressor therapy. https://www.who.int/publications/i/item/WHO-2019-nCoV-clinical-2021-1	http://purl.obolibrary.org/obo/DOID_0081012	
Crohn's disease ; DOID:8778	An intestinal disease that involves inflammation located_in intestine.	http://purl.obolibrary.org/obo/DOID_8778	HP:0100280
cutaneous lupus erythematosus ; DOID:0050169	A lupus erythematosus that causes skin lesions on parts of the body that are exposed to sunlight.	http://purl.obolibrary.org/obo/DOID_0050169	
cystic fibrosis ; DOID:1485	A syndrome that is characterized by the buildup of thick, sticky mucus that can damage many organs.	http://purl.obolibrary.org/obo/DOID_1485	

cystic kidney disease ; DOID:2975	Polycystic kidney disease (PKD) is an inherited disorder in which clusters of cysts develop primarily within your kidneys, causing your kidneys to enlarge and lose function over time. Cysts are noncancerous round sacs containing fluid. The cysts vary in size, and they can grow very large.	http://purl.obolibrary.org/obo/DOID_2975	HP:0000107
cystinosis ; DOID:1064	A lysosomal storage disease characterized by the abnormal accumulation of cystine in the lysosomes. It follows an autosomal recessive inheritance pattern and that has_material_basis_in mutations in the CTNS gene, located on chromosome 17.	http://purl.obolibrary.org/obo/DOID_1064	
Cytogenetically Normal Acute Myeloid Leukemia ; NCIT:C122687	Acute myeloid leukemia not associated with cytogenetic abnormalities.	http://purl.obolibrary.org/obo/NCIT_C122687	HP:0004808
Cytomegaloviral Infection ; NCIT:C53649	A herpesvirus infection caused by Cytomegalovirus. Healthy individuals generally do not produce symptoms. However, the infection may be life-threatening in affected immunocompromised patients. The virus may cause retinitis, esophagitis, gastritis, and colitis. Morphologically, it is characterized by the presence of intranuclear inclusion bodies.	http://purl.obolibrary.org/obo/NCIT_C53649	
dementia ; DOID:1307	A cognitive disorder resulting from a loss of brain function affecting memory, thinking, language, judgement and behavior.	http://purl.obolibrary.org/obo/DOID_1307	
Dementia with psychosis ; UMLS CUI:C0543884	No definition yet. Semantic Types:Mental or Behavioral Dysfunction	https://uts.nlm.nih.gov/uts/umls/concept/C0543884	

dengue disease ; DOID:12205	A viral infectious disease that results in infection, has_material_basis_in Dengue virus [NCBITaxon:12637] with four serotypes (Dengue virus 1, 2, 3 and 4), which are transmitted by Aedes mosquito bite. The infection has symptom fever, has symptom severe headache, has symptom severe pain behind the eyes, has symptom joint pain, has symptom muscle and bone pain, has symptom rash, and has symptom mild bleeding.	http://purl.obolibrary.org/obo/DOID_12205	
dengue hemorrhagic fever ; DOID:12206	A dengue disease that occurs when a person experiences a second infection with a heterologous Dengue virus serotype, which is transmitted_by Aedes mosquito bite. The infection has_symptom hemorrhagic lesions of the skin, has_symptom thrombocytopenia, has_symptom reduction in the fluid part of the blood, and has_symptom high fever.	http://purl.obolibrary.org/obo/DOID_12206	
Dependence on peritoneal dialysis due to end stage renal disease ; SNOMEDCT:428937001	Dependence on peritoneal dialysis due to end stage renal disease (UMLS CUI:C1997877)	http://purl.bioontology.org/ontology/SNOMEDCT/428937001	
dermatomyositis ; DOID:10223	A myositis that results_in inflammation located_in muscle or located_in skin where a skin rash is often seen prior to the onset of muscle weakness. The disease may result from either a viral infection or an autoimmune reaction.	http://purl.obolibrary.org/obo/DOID_10223	
dermatophytosis ; DOID:8913	A cutaneous mycosis that results_in fungal infection located_in scalp, located_in glabrous skin, or located_in nail, has_material_basis_in Ascomycota fungi that belong to a group called dermatophytes, which have the ability to utilize keratin as a nutrient source.	http://purl.obolibrary.org/obo/DOID_8913	

developmental disorder of mental health ; DOID:0060037	A disease of mental health that occur during a child's developmental period between birth and age 18 resulting in retarding of the child's psychological or physical development.	http://purl.obolibrary.org/obo/DOID_0060037	
diabetes mellitus ; DOID:9351	A glucose metabolism disease characterized by chronic hyperglycaemia with disturbances of carbohydrate, fat and protein metabolism resulting from defects in insulin secretion, insulin action, or both.	http://purl.obolibrary.org/obo/DOID_9351	HP:0000819
diphtheria ; DOID:11405	A primary bacterial infectious disease that is characterized by sore throat, low fever, and an adherent membrane (a pseudomembrane) on the tonsils, pharynx, and/or nasal cavity. A milder form of diphtheria can be restricted to the skin. It is caused by Corynebacterium diphtheriae, an aerobic Gram-positive bacterium. Diphtheria toxin spreads through the bloodstream and can lead to potentially life-threatening complications that affect other organs of the body, such as the heart and kidneys.	http://purl.obolibrary.org/obo/DOID_11405	
disease ; DOID:4	A disease is a disposition (i) to undergo pathological processes that (ii) exists in an organism because of one or more disorders in that organism.	http://purl.obolibrary.org/obo/DOID_4	
disease by infectious agent ; DOID:0050117	A disease that is the consequence of the presence of pathogenic microbial agents, including pathogenic viruses, pathogenic bacteria, fungi, protozoa, multicellular parasites, and aberrant proteins known as prions.	http://purl.obolibrary.org/obo/DOID_0050117	
disease of metabolism ; DOID:0014667	A disease that involving errors in metabolic processes of building or degradation of molecules.	http://purl.obolibrary.org/obo/DOID_0014667	

diverticulitis ; DOID:7475	An intestinal disease characterized by the formation and inflammation of diverticula within the bowel wall. (UMLS CUI:C0012813)	http://purl.obolibrary.org/obo/DOID_7475	
Dyspnea with Mild Physical Activity ; NCIT_C191546	Dyspnea experienced during minimal exertion.	https://ncit.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&ns=ncit&code=C191546	
Dyspnea with Moderate Physical Activity ; NCIT_C191547	Dyspnea experienced during moderate exertion.	https://ncit.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&ns=ncit&code=C191547	
Ebola hemorrhagic fever ; DOID:4325	A viral infectious disease that is a hemorrhagic fever, has_material_basis_in Zaire ebolavirus, has_material_basis_in Sudan ebolavirus, has_material_basis_in Cote d'Ivoire ebolavirus, or has_material_basis_in Bundibugyo ebolavirus, which are transmitted_by contact with the body fluids of an infected animal or person, transmitted by contaminated fomites, or transmitted by infected medical equipment. The infection has_symptom fever, has_symptom headache, has_symptom joint pain, has_symptom muscle aches, has_symptom sore throat, has_symptom weakness, has_symptom diarrhea, has_symptom vomiting, has_symptom stomach pain, has_symptom rash, has_symptom red eyes, has_symptom hiccups, and has_symptom internal and external bleeding.	http://purl.obolibrary.org/obo/DOID_4325	

EBV Infection ; NCIT:C38759	An infection that is caused by Epstein-Barr virus.	http://purl.obolibrary.org/obo/NCIT_C38759	
EBV-Related Post-Transplant Lymphoproliferative Disorder ; NCIT:C27696	A lymphoproliferative disorder that develops following organ transplantation and is associated with Epstein-Barr virus infection.	http://purl.obolibrary.org/obo/NCIT_C27696	
eczema herpeticum ; DOID:9123	A herpes simplex that results_in infection located_in skin, effected by preexisting dermatosis, has_material_basis_in Human herpesvirus 1 or Human herpesvirus 2. The infection has_symptom watery blisters, has_symptom fever, and has_symptom swelling of the lymph nodes.	http://purl.obolibrary.org/obo/DOID_9123	
eczema vaccinatum ; UMLS CUI:C0936249	ICD10CM:T88.1 (can ref: https://academic.oup.com/cid/article-abstract/54/6/832/290140)	https://uts.nlm.nih.gov/uts/umls/concept/C0936249	
egg allergy ; DOID:4377	A food allergy that is an allergy or hypersensitivity to dietary substances from the yolk or whites of eggs, causing an overreaction of the immune system which may lead to severe physical symptoms.	http://purl.obolibrary.org/obo/DOID_4377	
encephalitis ; DOID:9588	A brain disease that is characterized as an acute inflammation of the brain with flu-like symptoms.	http://purl.obolibrary.org/obo/DOID_9588	HP:0002383
end stage renal disease ; DOID:783	A chronic kidney disease is characterized by non-functioning kidneys, as the final stage in chronic kidney disease.	http://purl.obolibrary.org/obo/DOID_783	
endocarditis ; DOID:10314	A endocardium disease characterized by inflammation of the endocardium of the heart chambers and valves.	http://purl.obolibrary.org/obo/DOID_10314	HP:0100584
eosinophilic esophagitis ; DOID:13922	An esophagitis characterized by inflammation involving eosinophils located_in esophagus.	http://purl.obolibrary.org/obo/DOID_13922	

epidermolysis bullosa ; DOID:2730	A vesiculobullous skin disease that is characterized by formation of blisters with only minor skin trauma, which can cause widespread wounds, dehydration, electrolyte abnormalities, and severe infection, frequently develops_from mutations in connective tissue elements, including genes encoding keratin, collagen, and laminin.	http://purl.obolibrary.org/obo/DOID_2730	
epilepsy ; DOID:1826	A brain disease that is characterized by the occurrance of at least two unprovoked seizures resulting from a persistent epileptogenic abnormality of the brain that is able to spontaneously generate paroxysmal activity and typically manifested by sudden brief episodes of altered or diminished consciousness, involuntary movements, or convulsions.	http://purl.obolibrary.org/obo/DOID_1826	HP:0001250
Escherichia Coli Infection ; NCIT:C34594	Infection with the organism Escherichia Coli.	http://purl.obolibrary.org/obo/NCIT_C34594	HP:0002740
esophageal atresia ; DOID:10485	esophageal atresia	http://purl.obolibrary.org/obo/DOID_10485	HP:0002032
esophageal atresia/tracheoesophageal fistula ; DOID:0080171	A gastrointestinal system disease that is characterized by abnormal development of the esophagus and trachea where the upper esophagus does not connect (atresia) to the lower esophagus and stomach and may also include tracheoesophageal fistula where the esophagus and the trachea are abnormally connected which allows fluids from the esophagus to get into the airways and interfere with breathing.	http://purl.obolibrary.org/obo/DOID_0080171	
Failure to Thrive ; NCIT:C107587	A clinical finding indicating less than normal growth in an infant or child, or a state of global decline in an adult. (UMLS CUI:C0015544)	http://purl.obolibrary.org/obo/NCIT_C107587	

Family Medical History ; NCIT:C17726	A record of a patient's background regarding health and disease events of blood relatives. A patient's family medical history may be important in diagnosing existing conditions.	http://purl.obolibrary.org/obo/NCIT_C17726	
fibromyalgia ; DOID:631	fibromyalgia	http://purl.obolibrary.org/obo/DOID_631	
focal segmental glomerulosclerosis ; DOID:1312	Focal segmental glomerulosclerosis (FSGS) is a disease in which scar tissue develops on the parts of the kidneys that filter waste from the blood (glomeruli). FSGS can be caused by a variety of conditions.	http://purl.obolibrary.org/obo/DOID_1312	HP:0000097
food allergy ; DOID:3044	A hypersensitivity reaction type I disease that is an abnormal response to a food, triggered by the body's immune system.	http://purl.obolibrary.org/obo/DOID_3044	
gastroesophageal reflux disease ; DOID:8534	gastroesophageal reflux disease	http://purl.obolibrary.org/obo/DOID_8534	HP:0002020
glioblastoma ; DOID:3068	A malignant astrocytoma characterized by the presence of small areas of necrotizing tissue that is surrounded by anaplastic cells as well as the presence of hyperplastic blood vessels, and that has_material_basis_in abnormally proliferating cells derives_from multiple cell types including astrocytes and oligondroctyes.	http://purl.obolibrary.org/obo/DOID_3068	HP:0012174
Goodpasture syndrome ; DOID:9808	An autoimmune disease that is characterized by antibody attack of the basement membrane in lungs and kidneys, leading to bleeding from the lungs and kidney failure.	http://purl.obolibrary.org/obo/DOID_9808	

granulomatosis with polyangiitis ; DOID:12132	An autoimmune disease that is characterized by necrotizing granulomatous inflammation of the upper and lower respiratory tract, glomerulonephritis, vasculitis, and the presence of antineutrophil cytoplasmatic autoantibodies (ANCAs) in patient sera, and is located_in lung, located_in kidney, located_in skin resulting from an autoimmune attack by antineutrophil cytoplasmic antibodies against small and medium-size blood vessels.	http://purl.obolibrary.org/obo/DOID_12132	
Graves' disease ; DOID:12361	An autoimmune disease of endocrine system that involves production of excessive amount of thyroid hormones, located_in thyroid gland.	http://purl.obolibrary.org/obo/DOID_12361	HP:0100647
Guillain-Barre syndrome ; DOID:12842	An autoimmune disease of peripheral nervous system that causes body's immune system to attack part of the peripheral nervous system.	http://purl.obolibrary.org/obo/DOID_12842	
haemophilus meningitis ; DOID:0080179	A bacterial meningitis that has_material_basis_in Haemophilus influenzae infection.	http://purl.obolibrary.org/obo/DOID_0080179	
healthy ; NCIT:C115935	Having no significant health-related issues.	http://purl.obolibrary.org/obo/NCIT_C115935	
Heart Failure ; NCIT:C50577	Inability of the heart to pump blood at an adequate rate to meet tissue metabolic requirements. Clinical symptoms of heart failure include: unusual dyspnea on light exertion, recurrent dyspnea occurring in the supine position, fluid retention or rales, jugular venous distension, pulmonary edema on physical exam, or pulmonary edema on chest x-ray presumed to be cardiac dysfunction. (UMLS CUI:C0018801)	http://purl.obolibrary.org/obo/NCIT_C50577	

Heart Transplantation ; NCIT:C15246	A surgical procedure in which a damaged heart is removed and replaced by another heart from a suitable donor.	http://purl.obolibrary.org/obo/NCIT_C15246	
Helicobacter Pylori Infection ; NCIT:C39293	A bacterial infection of the stomach, caused by Helicobacter pylori. It is associated with the development of peptic ulcer and mucosa-associated lymphoid tissue lymphoma.	http://purl.obolibrary.org/obo/NCIT_C39293	HP:0005202
hematologic cancer ; DOID:2531	An organ system cancer located in the hematological system that is characterized by uncontrolled cellular proliferation in blood, bone marrow and lymph nodes.	http://purl.obolibrary.org/obo/DOID_2531	HP:0004377
Hematopoietic Cell Transplant Recipient ; CL507993	An individual receiving a hematopoietic cell transplant	https://evsexplore.semantics.cancer.gov/evsexplore/concept/ncim/CL507993	
hematopoietic system disease ; DOID:74	A disease of anatomical entity that has_material_basis_in hematopoietic cells.	http://purl.obolibrary.org/obo/DOID_74	HP:0001871
hemiplegia ; DOID:10969	A central nervous system disease that is characterized by the complete paralysis of half of the body.	http://purl.obolibrary.org/obo/DOID_10969	HP:0002301
hemoglobinopathy ; DOID:2860	hemoglobinopathy	http://purl.obolibrary.org/obo/DOID_2860	
hemolytic-uremic syndrome ; DOID:12554	A kidney disease that is characterized by hemolytic anemia, thrombocytopenia, and renal failure caused by platelet thrombi in the microcirculation of the kidney and other organs.	http://purl.obolibrary.org/obo/DOID_12554	HP:0005575
hepatitis ; DOID:2237	(UMLS CUI:C0267797)	http://purl.obolibrary.org/obo/DOID_2237	

hepatitis A ; DOID:12549	A viral infectious disease that results_in inflammation located_in liver, has_material_basis_in Hepatitis A virus, which is transmitted_by ingestion of contaminated food or water, or transmitted_by direct contact with an infected person. The infection has_symptom fever, has_symptom fatigue, has_symptom loss of appetite, has_symptom nausea, has_symptom vomiting, has_symptom abdominal pain, has_symptom clay-colored bowel movements, has_symptom joint pain, and has_symptom jaundice.	http://purl.obolibrary.org/obo/DOID_12549	
hepatitis B ; DOID:2043	A viral infectious disease that results_in inflammation located_in liver, has_material_basis_in Hepatitis B virus, which is transmitted_by sexual contact, transmitted_by blood transfusions, and transmitted_by fomites like needles or syringes. The infection has_symptom fever, has_symptom fatigue, has_symptom loss of appetite, has_symptom nausea, has_symptom vomiting, has_symptom abdominal pain, has_symptom clay-colored bowel movements, has_symptom joint pain, and has_symptom jaundice.	http://purl.obolibrary.org/obo/DOID_2043	
hepatitis C ; DOID:1883	A viral infectious disease that results_in inflammation located_in liver, has_material_basis_in Hepatitis C virus, which is transmitted_by blood from an infected person enters the body of an uninfected person. The infection has_symptom fever, has_symptom fatigue, has_symptom loss of appetite, has_symptom nausea, has_symptom vomiting, has_symptom abdominal pain, has_symptom clay-colored bowel movements, has_symptom joint pain, and has_symptom jaundice.	http://purl.obolibrary.org/obo/DOID_1883	

herpes zoster ; DOID:8536	A viral infectious disease that results_in infection located_in nerve fiber, has_material_basis_in Human herpesvirus 3, which reactivates after appearing as chickenpox in childhood. The virus is transmitted_by direct contact with the rash, which can develop into chickenpox in newly-infected individuals. The infection has_symptom rash which is followed by blisters, has_symptom headache, has_symptom fever, has_symptom malaise, has_symptom itching, has_symptom burning pain, and has_symptom paresthesia.	http://purl.obolibrary.org/obo/DOID_8536	
human cytomegalovirus infection ; DOID:0080827	A viral infectious disease that has_material_basis_in Human betaherpesvirus 5.	http://purl.obolibrary.org/obo/DOID_0080827	
human immunodeficiency virus infectious disease ; DOID:526	A viral infectious disease that results in destruction of immune system, leading to life-threatening opportunistic infections and cancers, has_material_basis_in Human immunodeficiency virus 1 or has_material_basis_in Human immunodeficiency virus 2, which are transmitted by sexual contact, transmitted by transfer of blood, semen, vaginal fluid, pre-ejaculate, or breast milk, transmitted by congenital method, and transmitted by contaminated needles. The virus infects helper T cells (CD4+ T cells) which are directly or indirectly destroyed, macrophages, and dendritic cells. The infection has symptom diarrhea, has symptom fatigue, has symptom fever, has symptom vaginal yeast infection, has symptom headache, has symptom mouth sores, has symptom muscle aches, has symptom sore throat, and has symptom swollen lymph glands.	http://purl.obolibrary.org/obo/DOID_526	

hydronephrosis ; DOID:11111	hydronephrosis	http://purl.obolibrary.org/obo/DOID_11111	HP:0000126
hypertension ; DOID:10763	An artery disease characterized by chronic elevated blood pressure in the arteries.	http://purl.obolibrary.org/obo/DOID_10763	HP:0000822
Hypertension not adequately controlled ; UMLS CUI:C0857354	No definition yet. Semantic Types:Disease or Syndrome	https://uts.nlm.nih.gov/uts/umls/concept/C0857354	
hypoglycemia ; DOID:9993	A glucose metabolism disease that is characterized by abnormally low levels of blood glucose.	http://purl.obolibrary.org/obo/DOID_9993	HP:0001943
Hyponatremia ; NCIT:C37976	Lower than normal levels of sodium in the circulating blood. (UMLS CUI:C0020625)	http://purl.obolibrary.org/obo/NCIT_C37976	
hypothyroidism ; DOID:1459	A thyroid gland disease which involves an underproduction of thyroid hormone.	http://purl.obolibrary.org/obo/DOID_1459	HP:0000821
hysterectomy history ; OBI:0002398	A gynecologic surgery history in which a woman has had a hysterectomy.	http://purl.obolibrary.org/obo/OBI_0002398	
ichthyosis ; DOID:1697	A skin disease characterized by drying and scaling of skin with the accumulation of thick scales and cracks that may be painful or bleed.	http://purl.obolibrary.org/obo/DOID_1697	HP:0008064
idiopathic pulmonary fibrosis ; DOID:0050156	A pulmonary fibrosis that is characterized by scarring of the lung.	http://purl.obolibrary.org/obo/DOID_0050156	

Immunocompromised ; NCIT:C14139	A loss of any arm of immune functions, resulting in potential or actual increase in infections. This state may be reached secondary to specific genetic lesions, syndromes with unidentified or polygenic causes, acquired deficits from other disease states, or as result of therapy for other diseases or conditions. (UMLS CUI:C2186379)	http://purl.obolibrary.org/obo/NCIT_C14139	
Immunologic Tolerance ; NCIT:C17712	An innate tolerance that prevents the body from attacking native proteins and tissue.	http://purl.obolibrary.org/obo/NCIT_C17712	
Immunosuppressive Disorder ; C178942	Immunosuppressive Disorder A disorder in which immune function is suppressed.	http://purl.obolibrary.org/obo/NCIT_C178942	
inflammatory bowel disease ; DOID:0050589	An intestinal disease characterized by inflammation located in all parts of digestive tract.	http://purl.obolibrary.org/obo/DOID_0050589	
Inflammatory Disorder ; C93210	An infectious or non infectious disorder characterized by signs and symptoms derived from focal or extensive tissue infiltration by acute (e.g., polymorphonuclear) or chronic (e.g., lymphocytic-plasmacytic) inflammatory cells. Representative examples of infectious disorders include viral infections, bacterial infections, and parasitic infections. Representative examples of non-infectious inflammatory disorders include inflammatory bowel disease and inflammatory polyps	http://purl.obolibrary.org/obo/NCIT_C93210	

influenza ; DOID:8469	A viral infectious disease that results in infection, located in respiratory tract, has_material_basis_in Influenzavirus A, has_material_basis_in Influenzavirus B, or has_material_basis_in Influenzavirus C, which are transmitted_by droplet spread of oronasal secretions during coughing, sneezing, or talking from an infected person. It is a highly contagious disease that affects birds and mammals and has_symptom chills, has_symptom fever, has_symptom sore throat, has_symptom runny nose, has_symptom muscle pains, has_symptom severe headache, has_symptom cough, and has_symptom weakness.	http://purl.obolibrary.org/obo/DOID_8469	
interstitial lung disease ; DOID:3082	A lung disease that is characterized by inflammation and altered lung interstitium compromising pulmonary function and often has_symptom shortness of breath, dyspnea, and/or cough.	http://purl.obolibrary.org/obo/DOID_3082	HP:0006530
interstitial nephritis ; DOID:1063	Interstitial nephritis is a kidney disorder. The kidneys filter waste and extra fluid from the body. When you have interstitial nephritis, the spaces between tubules (small tubes) inside the kidney become inflamed. This reduces the kidneys' ability to filter properly.	http://purl.obolibrary.org/obo/DOID_1063	HP:0001970
intestinal infectious disease ; DOID:100	An intestinal disease that involves intestinal infection that has_material_basis_in viruses, bacteria, fungi and parasites.	http://purl.obolibrary.org/obo/DOID_100	
Irritable bowel syndrome with diarrhea ; SNOMEDCT:197125005	Irritable bowel syndrome with diarrhea (UMLS CUI:C0348898)	http://purl.bioontology.org/ontology/SNOMEDCT/197125005	

juvenile rheumatoid arthritis ; DOID:676	A rheumatoid arthritis that involves an autoimmune disease onset in children under 16 which attacks the healthy cells and tissue of located_in joint.	http://purl.obolibrary.org/obo/DOID_676	
keratoconjunctivitis sicca ; DOID:12895	Dryness of the eye related to deficiency of the tear film components (aqueous, mucin, or lipid), lid surface abnormalities, or epithelial abnormalities. Keratoconjunctivitis sicca often results in a scratchy or sandy sensation (foreign body sensation) in the eyes, and may also be associated with itching, inability to produce tears, photosensitivity, redness, pain, and difficulty in moving the eyelids.	http://purl.obolibrary.org/obo/DOID_12895	HP:0001097
kidney cortex necrosis ; DOID:2973	A kidney cortex disease that is characterized by death of the tissue in the outer part of the kidney that results from blockage of the small arteries that supply blood to the cortex and that causes acute kidney injury.	http://purl.obolibrary.org/obo/DOID_2973	
kidney disease ; DOID:557	A urinary system disease that is located in the kidney.	http://purl.obolibrary.org/obo/DOID_557	
kidney failure ; DOID:1074	A kidney disease characterized by the failure of the kidneys to adequately filter waste products from the blood.	http://purl.obolibrary.org/obo/DOID_1074	HP:0000083
Kidney Transplantation ; NCIT:C15265	The transfer of a healthy kidney from a donor to a patient for the purpose of replacing one of the failing kidneys of the patient.	http://purl.obolibrary.org/obo/NCIT_C15265	
Lambert-Eaton myasthenic syndrome ; DOID:0050214	A neuromuscular junction disease that is characterized by an abnormality of acetylcholine (ACh) release at the neuromuscular junction which results from an autoimmune attack against voltage-gated calcium channels (VGCC) on the presynaptic motor nerve terminal.	http://purl.obolibrary.org/obo/DOID_0050214	

laryngomalacia ; DOID:0080833	A laryngeal disease that is characterized by inward collapse of flaccid supraglottic structures during inspiration. The most common symptom is noisy breathing (stridor) that is often worse when the infant is on his/her back or crying.	http://purl.obolibrary.org/obo/DOID_0080833	
leukemia ; DOID:1240	A cancer that affects the blood or bone marrow characterized by an abnormal proliferation of blood cells.	http://purl.obolibrary.org/obo/DOID_1240	HP:0001909
lichen planus ; DOID:9201	A lichen disease that is located_in skin, located_in tongue or located_in oral mucosa, which presents itself in the form of papules, lesions or rashes.	http://purl.obolibrary.org/obo/DOID_9201	
Listeria meningitis ; DOID:11572	A bacterial meningitis that has_material_basis_in Listeria monocytogenes infection.	http://purl.obolibrary.org/obo/DOID_11572	
liver cancer ; DOID:3571	A hepatobiliary system cancer that is located_in the liver.	http://purl.obolibrary.org/obo/DOID_3571	HP:0002896
liver disease ; DOID:409	liver disease	http://purl.obolibrary.org/obo/DOID_409	HP:0001392
Liver Transplantation ; NCIT:C15271	The transfer of a healthy liver allograft from a donor to a patient.	http://purl.obolibrary.org/obo/NCIT_C15271	
localized scleroderma ; DOID:8472	localized scleroderma	http://purl.obolibrary.org/obo/DOID_8472	HP:0100324
lung adenocarcinoma ; DOID:3910	A lung non-small cell carcinoma that derives_from epithelial cells of glandular origin.	http://purl.obolibrary.org/obo/DOID_3910	HP:0030078
lung cancer ; DOID:1324	A respiratory system cancer that is located_in the lung.	http://purl.obolibrary.org/obo/DOID_1324	

lung disease ; DOID:850	A lower respiratory tract disease in which the function of the lungs is adversely affected by narrowing or blockage of the airways resulting in poor air flow, a loss of elasticity in the lungs that produces a decrease in the total volume of air that the lungs are able to hold, and clotting, scarring, or inflammation of the blood vessels that affect the ability of the lungs to take up oxygen and to release carbon dioxide.	http://purl.obolibrary.org/obo/DOID_850	HP:0002088
Lung Transplantation ; NCIT:C15274	The surgical transfer of one or both lungs from one individual to another.	http://purl.obolibrary.org/obo/NCIT_C15274	
lupus erythematosus ; DOID:8857	An autoimmune disease that is characterized by a constellation of findings that include elevated antibodies to nuclear antigens, antiphospholipids, low complement levels, ulcers, non-scarring alopecia, renal or neurologic damage, and low white blood cell and platelet counts, has_symptom rashes, fatigue, arthritis, hair loss, seizures, and symptoms related to affected organs. (UMLS CUI:C0409974)	http://purl.obolibrary.org/obo/DOID_8857	
lupus nephritis ; DOID:0080162	A glomerulonephritis that is characterized by inflammation of the kidneys resulting from systemic lupus erythematosus.	http://purl.obolibrary.org/obo/DOID_0080162	
Lyme disease ; DOID:11729	A primary bacterial infectious disease that results_in infection, has_material_basis_in Borrelia burgdorferi, which is transmitted_by blacklegged tick (Ixodes scapularis) or transmitted_by western blacklegged tick (Ixodes pacificus). The infection has_symptom fever, has_symptom headache, has_symptom fatigue, and has_symptom skin rash called erythema migrans. If left untreated, infection can spread to joints, the heart, and the nervous system.	http://purl.obolibrary.org/obo/DOID_11729	

lymphocytic choriomeningitis ; DOID:12155	A viral infectious disease that results in infection located in brain, or located in meninges, or located in brain and meninges, has_material_basis_in Lymphocytic choriomeningitis virus, which is transmitted by common house mouse, Mus musculus. The infection has symptom fever, has symptom lack of appetite, has symptom headache, has symptom muscle aches, has symptom malaise, has symptom nausea, and has symptom vomiting.	http://purl.obolibrary.org/obo/DOID_12155	
lymphoma ; DOID:0060058	A hematologic cancer that affects lymphocytes that reside in the lymphatic system and in blood-forming organs.	http://purl.obolibrary.org/obo/DOID_0060058	HP:0002665
malaria ; DOID:12365	A parasitic protozoa infectious disease characterized as a vector-borne infectious disease caused by the presence of protozoan parasites of the genus Plasmodium in the red blood cells, transmitted from an infected to an uninfected individual by the bite of anopheline mosquitoes, and characterized by periodic attacks of chills and fever that coincide with mass destruction of blood cells and the release of toxic substances by the parasite at the end of each reproductive cycle.	http://purl.obolibrary.org/obo/DOID_12365	
Malignant Gastric Neoplasm ; NCIT:C9331	A primary or metastatic malignant neoplasm involving the stomach. (UMLS CUI:C0024623)	http://purl.obolibrary.org/obo/NCIT_C9331	
Malignant Lung Neoplasm ; NCIT:C7377	A primary or metastatic malignant neoplasm involving the lung. (UMLS CUI:C0242379)	http://purl.obolibrary.org/obo/NCIT_C7377	

measles ; DOID:8622	A viral infectious disease that results_in infection located_in skin, has_material_basis_in Measles virus, which is transmitted_by contact with oronasal secretions, or semen of an infected person. The infection has_symptom fever, has_symptom cough, has_symptom coryza, has_symptom conjunctivitis, and has_symptom maculopapular, erythematous rash.	http://purl.obolibrary.org/obo/DOID_8622	
meningitis ; DOID:9471	A central nervous system disease that is characterized by an inflammation of the pia-arachnoid meninges. It can be caused by growth of bacteria, fungi, or parasites within the subarachnoid space or by the growth of bacteria or viruses within the meningeal or ependymal cells.	http://purl.obolibrary.org/obo/DOID_9471	HP:0001287
meningococcal meningitis ; DOID:0080176	A bacterial meningitis that has_material_basis_in Neisseria meningitidis infection.	http://purl.obolibrary.org/obo/DOID_0080176	
meningoencephalitis ; DOID:10554	A central nervous system disease that involves encephalitis which occurs along with meningitis.	http://purl.obolibrary.org/obo/DOID_10554	
mental depression ; DOID:1596	mental depression	http://purl.obolibrary.org/obo/DOID_1596	
MERS-CoV ; SNOMEDCT:697932005	Middle East respiratory syndrome coronavirus	http://purl.bioontology.org/ontology/SNOMEDCT/697932005	

Metabolic Syndrome ; NCIT:C84442	A combination of medical conditions that when present, increase the risk of heart attack, stroke, and diabetes mellitus. It includes the following medical conditions: increased blood pressure, central obesity, dyslipidemia, impaired glucose tolerance, and insulin resistance.	http://purl.obolibrary.org/obo/NCIT_C84442	
milk allergy ; DOID:4376	A food allergy that results in adverse immune reaction to one or more of the proteins in cow's milk and/or the milk of other animals, which are normally harmless to the non-allergic individual.	http://purl.obolibrary.org/obo/DOID_4376	
miscarriage ; SYMP:0000198	Miscarriage is a reproductive system symptom characterized by the spontaneous expulsion of a human fetus before it is viable and especially between the 12th and 28th weeks of gestation.	http://purl.obolibrary.org/obo/SYMP_0000198	
mitral valve insufficiency ; DOID:11502	(UMLS CUI:C0026266)	http://purl.obolibrary.org/obo/DOID_11502	
mixed connective tissue disease ; DOID:3492	A collagen disease that is considered an overlap of three diseases, systemic lupus erythematosus, scleroderma, and polymyositis with very high titers of circulating antinuclear antibody to a ribonucleoprotein antigen.	http://purl.obolibrary.org/obo/DOID_3492	
molluscum contagiosum ; DOID:8867	A viral infectious disease that results_in infection located_in skin, has_material_basis_in Molluscum contagiosum virus, which is transmitted_by contact with the skin, and transmitted_by fomites. The infection has_symptom lesions which are flesh-colored with a pit in the center.	http://purl.obolibrary.org/obo/DOID_8867	
multiple myeloma ; DOID:9538	A myeloid neoplasm that is located_in the plasma cells in bone marrow. (UMLS CUI:C0026764)	http://purl.obolibrary.org/obo/DOID_9538	

Multiple Pulmonary Nodules ; NCIT:C122408	Multiple, small, round or oval, benign or malignant growths in the lung(s), which can be due to infectious, inflammatory, or neoplastic processes. (UMLS CUI:C0748164)	http://purl.obolibrary.org/obo/NCIT_C122408	
multiple sclerosis ; DOID:2377	A demyelinating disease that involves damage to the fatty myelin sheaths around the axons of the brain and spinal cord resulting in demyelination and scarring.	http://purl.obolibrary.org/obo/DOID_2377	
mumps ; DOID:10264	A viral infectious disease that results in inflammation located in salivary gland, has_material_basis_in Mumps rubulavirus, which is transmitted by droplet spread of saliva or mucus from the mouth, nose, or throat of an infected person, or transmitted by contaminated fomites. The infection has symptom fever, has symptom headache, has symptom muscle aches, has symptom tiredness, has symptom loss of appetite, has symptom swollen and tender salivary glands under the ears or jaw on one or both sides of the face.	http://purl.obolibrary.org/obo/DOID_10264	
muscle invasive bladder cancer ; UMLS CUI:C4725841	Muscle Invasive Bladder Carcinoma. A carcinoma that arises from the bladder mucosa and invades the muscle of the bladder wall.(NCI)	https://uts.nlm.nih.gov/uts/umls/concept/C4725841	
muscular dystrophy ; DOID:9884	A myopathy is characterized by progressive skeletal muscle weakness degeneration.	http://purl.obolibrary.org/obo/DOID_9884	HP:0003560
musculoskeletal system disease ; DOID:17	A disease of anatomical entity that occurs in the muscular and/or skeletal system.	http://purl.obolibrary.org/obo/DOID_17	

myasthenia gravis ; DOID:437	An autoimmune disease of the nervous system that has_material_basis_in antibodies to acetylcholine receptors at the neuromuscular junction, has_symptom ptosis, has_symptom diplopia, has_symptom dysphagia, has_symptom dysarthria, has_symptom muscle weakness and has_symptom shortness of breath.	http://purl.obolibrary.org/obo/DOID_437	
myocardial infarction ; DOID:5844	A coronary artery disease characterized by myocardial cell death (myocardial necrosis) due to prolonged ischaemia.	http://purl.obolibrary.org/obo/DOID_5844	HP:0001658
myocarditis ; DOID:820	An extrinsic cardiomyopathy that is characterized as an inflammation of the heart muscle.	http://purl.obolibrary.org/obo/DOID_820	HP:0012819
narcolepsy ; DOID:8986	A sleep disorder that involves an excessive urge to sleep at inappropriate times, such as while at work.	http://purl.obolibrary.org/obo/DOID_8986	HP:0030050
neonatal candidiasis ; DOID:9577	A candidiasis that involves fungal infection in neonates caused by Candida species. Low birthweight and age, prolonged intravascular catheterization and the use of antibiotic drugs are the principle predisposing conditions for systemic candidiasis in neonates.	http://purl.obolibrary.org/obo/DOID_9577	
Neonatal Hypoxic Ischemic Encephalopathy ; NCIT:C119751	Injury to the central nervous system in the newborn period that occurs when there is insufficient delivery of oxygen to all or part of the brain.	http://purl.obolibrary.org/obo/NCIT_C119751	
neoplastic, metastatic ; PATO:0002098	A disposition inhering in a tumour by virtue of the bearer's disposition to spread and invade distant tissues.	http://purl.obolibrary.org/obo/PATO_0002098	
nephrolithiasis ; DOID:585	A kidney disease characterized by the formation of stoney concentrations in the kidneys.	http://purl.obolibrary.org/obo/DOID_585	

Nephrostomy tube (physical object) ; SNOMEDCT:286628000	Nephrostomy tube (physical object) (UMLS CUI:C0184149)	http://purl.bioontology.org/ontology/SNOMEDCT/286628000	
nephrotic syndrome ; DOID:1184	A nephrosis characterized by marked increase in glomerular protein permeability resulting in marked elevation of urine protein levels, hypoalbuminemia, hyperlipidemia, and hypercoagulability.	http://purl.obolibrary.org/obo/DOID_1184	HP:0000100
nervous system disease ; DOID:863	A disease of anatomical entity that is located_in the central nervous system or located_in the peripheral nervous system.	http://purl.obolibrary.org/obo/DOID_863	
neurofibromatosis 1 ; DOID:0111253	A neurofibromatosis classically characterized by cafe-au-lait spots, Lisch nodules in the eye, and fibromatous tumors of the skin or in some cases by a high load of spinal tumors that has_material_basis_in heterozygous mutation in NF1 on 17q11.2.	http://purl.obolibrary.org/obo/DOID_0111253	
Neurological diseases or conditions ; UMLS CUI:C2359473	No definition yet. Semantic Types:Disease or Syndrome	https://uts.nlm.nih.gov/uts/umls/concept/C2359473	
neuromuscular disease ; DOID:440	A neuropathy that affect the nerves that control the voluntary muscles. (UMLS CUI:C0027868)	http://purl.obolibrary.org/obo/DOID_440	
neuromyelitis optica ; DOID:8869	A central nervous system disease characterized by inflammation of the optic nerve (optic neuritis) and inflammation of the spinal cord (myelitis).	http://purl.obolibrary.org/obo/DOID_8869	

Newcastle disease ; DOID:2929	A viral infectious disease that results_in infection in birds and humans, has_material_basis_in Newcastle disease virus, which is transmitted_by contact with feces and urine of an infected bird, or transmitted_by fomites. The infection has_symptom conjunctivitis, has_symptom headache, and has_symptom lacrimation in humans, and has_symptom gasping, has_symptom coughing, has_symptom twisting of head and neck, has_symptom circling, has_symptom complete paralysis, has_symptom watery diarrhea, and has_symptom reduced egg production in birds.	http://purl.obolibrary.org/obo/DOID_2929	
non-severe COVID-19 ; DOID:0081014	A COVID-19 that is characterized by the absence of any criteria for severe or critical COVID-19. https://www.who.int/publications/i/item/WHO-2019-nCoV-clinical-2021-1	http://purl.obolibrary.org/obo/DOID_0081014	
Not Applicable ; NCIT_C48660	Determination of a value is not relevant in the current context	http://purl.obolibrary.org/obo/NCIT_C48660	
Not Specified ; NCIT_C38046	Not stated explicitly or in detail	http://purl.obolibrary.org/obo/NCIT_C38046	
nutritional deficiency disease ; DOID:5113	A nutrition disease that is characterized by deficiency of a nutritional element, such as a vitamin, mineral, carbohydrate, protein, fat, or general energy content.	http://purl.obolibrary.org/obo/DOID_5113	

obesity ; DOID:9970	An overnutrition that is characterized by excess body fat, traditionally defined as an elevated ratio of weight to height (specifically 30 kilograms per meter squared), has_material_basis_in a multifactorial etiology related to excess nutrition intake, decreased caloric utilization, and genetic susceptibility, and possibly medications and certain disorders of metabolism, endocrine function, and mental illness.	http://purl.obolibrary.org/obo/DOID_9970	HP:0001513
optic nerve glioma ; DOID:4992	optic nerve glioma	http://purl.obolibrary.org/obo/DOID_4992	HP:0009734
optic neuritis ; DOID:1210	An optic nerve disease that results_in inflammation located_in optic nerve which may cause a complete or partial loss of vision.	http://purl.obolibrary.org/obo/DOID_1210	HP:0100653
osteoarthritis ; DOID:8398	An arthritis that has_material_basis_in worn out cartilage located_in joint.	http://purl.obolibrary.org/obo/DOID_8398	HP:0002758
Pancreas Transplantation ; NCIT:C15293	The surgical transfer of a pancreas from one individual to another.	http://purl.obolibrary.org/obo/NCIT_C15293	
pancreatic cancer ; DOID:1793	An endocrine gland cancer located_in the pancreas. (UMLS CUI:C0235974)	http://purl.obolibrary.org/obo/DOID_1793	
Pancreatic Islet Transplantation ; NCIT:C15352	The surgical transfer of pancreatic islet cells from one individual to another.	http://purl.obolibrary.org/obo/NCIT_C15352	
panniculitis ; DOID:1526	A skin disease that is characterized by inflammation of subcutaneous adipose tissue.	http://purl.obolibrary.org/obo/DOID_1526	HP:0012490
paraplegia ; DOID:607	paraplegia	http://purl.obolibrary.org/obo/DOID_607	HP:0010550

Parkinson's disease ; DOID:14330	A synucleinopathy that has_material_basis_in degeneration of the central nervous system that often impairs motor skills, speech, and other functions.	http://purl.obolibrary.org/obo/DOID_14330	
Partial Small Intestine Resection ; NCIT:C51512	Surgical removal of part of the small intestine. (UMLS CUI:C0192616)	http://purl.obolibrary.org/obo/NCIT_C51512	
peanut allergy ; DOID:4378	A legume allergy that is an allergy or hypersensitivity to dietary substances from peanuts causing an overreaction of the immune system which in a small percentage of people may lead to severe physical symptoms.	http://purl.obolibrary.org/obo/DOID_4378	
Pediatric acute-onset neuropsychiatric syndrome ; C000631768	PANS pediatric acute-onset neuropsychiatric syndrome	http://purl.bioontology.org/ontology/MESH/C000631768	C000631768
pemphigus vulgaris ; DOID:0060851	A pemphigus characterized by autosomal dominant blisters and erosions on the skin and mucous membranes erosions cause by autoantibodies to intercellular cement substance.	http://purl.obolibrary.org/obo/DOID_0060851	
peptic ulcer disease ; DOID:750	peptic ulcer disease	http://purl.obolibrary.org/obo/DOID_750	HP:0004398
Perennial Allergic Rhinitis ; NCIT:C92189	Allergic rhinitis caused by indoor allergens and lasting year round.	http://purl.obolibrary.org/obo/NCIT_C92189	HP:0003193
perinatal necrotizing enterocolitis ; DOID:8677	perinatal necrotizing enterocolitis	http://purl.obolibrary.org/obo/DOID_8677	
peripheral vascular disease ; DOID:341	A vascular disease that is characterized by obstruction of larger arteries not within the coronary, aortic arch vasculature, or brain.	http://purl.obolibrary.org/obo/DOID_341	

Peritoneal Dialysis ; NCIT:C15297	A form of dialysis that uses the peritoneum as a membrane across which the infused diasylate exchanges nutrients for waste products that are removed when the fluid is exchanged. (UMLS CUI:C0031139)	http://purl.obolibrary.org/obo/NCIT_C15297	
pernicious anemia ; DOID:13381	A nutritional deficiency disease that is characterized by a decrease in red blood cells due to malabsorption of vitamin B12, has_symptom fatigue, pallor, shortness of breath, glossitis, ataxia, and/or paresthesia, has_material_basis_in atrophic gastritis, autoimmune disorder affecting the production or function of intrinsic factor, and/or genetic factors.	http://purl.obolibrary.org/obo/DOID_13381	
pertussis ; DOID:1116	A commensal bacterial infectious disease that results_in inflammation located_in respiratory tract, has_material_basis_in Bordetella pertussis, or has_material_basis_in Bordetella parapertussis, which produce toxins that paralyze the cilia of the respiratory epithelial cells. The infection is characterized by a prolonged, high-pitched, deeply indrawn breath (whoop).	http://purl.obolibrary.org/obo/DOID_1116	
pervasive developmental disorder ; DOID:0060040	A developmental disorder of mental health that refers to a group of five disorders characterized by impairments in socialization and communication, as well as restricted interests and repetitive behaviors.	http://purl.obolibrary.org/obo/DOID_0060040	

pharyngitis ; DOID:2275	An upper respiratory tract disease involving inflammation of the throat or pharynx resulting from bacterial, viral, fungal infections or irritants like pollutants or chemical substances and smoking. The infection is often referred to as sore throat. The symptoms include pain during swallowing, enlarged tonsils coated with a white discharge, runny nose, cough and slight fever.	http://purl.obolibrary.org/obo/DOID_2275	
physical disorder ; DOID:0080015	A disease that has_material_basis_in a genetic abnormality, error with embryonic development, infection or compromised intrauterine environment.	http://purl.obolibrary.org/obo/DOID_0080015	
pituitary gland disease ; DOID:53	An endocrine system disease that is located_in the pituitary gland.	http://purl.obolibrary.org/obo/DOID_53	
placenta disease ; DOID:780	A uterine disease that is located_in the placenta.	http://purl.obolibrary.org/obo/DOID_780	
plague ; DOID:3482	A primary bacterial infectious disease that results_in infection, located_in lymph node, located_in vasculature or located_in lungs, has_material_basis_in Yersinia pestis, which is transmitted_by oriental rat flea (Xenopsylla cheopis) infected by feeding on rodents and other mammals, transmitted_by air, transmitted_by direct contact or transmitted_by ingestion of contaminated undercooked food.	http://purl.obolibrary.org/obo/DOID_3482	
Plasmodium falciparum malaria ; DOID:14067	A malaria described as a severe form of the disease caused by a parasite Plasmodium falciparum, which is marked by irrregular recurrence of paroxysms and prolonged or continuous fever.	http://purl.obolibrary.org/obo/DOID_14067	

Plasmodium vivax malaria ; DOID:12978	A malaria that is caused by the protozoan parasite Plasmodium vivax, which induces paroxysms at 48-hour intervals.	http://purl.obolibrary.org/obo/DOID_12978	
Pleural effusions, chronic ; UMLS CUI:C0747636	No definition yet. Semantic Types:Disease or Syndrome	https://uts.nlm.nih.gov/uts/umls/concept/C0747636	
pneumonia ; DOID:552	A lung disease that involves lung parenchyma or alveolar inflammation and abnormal alveolar filling with fluid (consolidation and exudation).	http://purl.obolibrary.org/obo/DOID_552	
polymyalgia rheumatica ; DOID:853	A collagen disease that is characterized by pain, stiffness, and tenderness of the proximal muscle groups including the shoulder, pelvic girdle and the neck.	http://purl.obolibrary.org/obo/DOID_853	
polymyositis ; DOID:0080745	A myositis that is characterized by muscle weakness affecting both sides of your body.	http://purl.obolibrary.org/obo/DOID_0080745	
portal vein thrombosis ; DOID:11695	A hepatic vascular disease that is characterized by a blood clot that forms within the hepatic portal vein. (UMLS CUI:C0155773)	http://purl.obolibrary.org/obo/DOID_11695	
Post-Acute Sequelae of COVID-19 ; NCIT_C179263	A constellation of signs and symptoms that can persist for weeks or months after acute infection with SARS-CoV-2, or appear weeks after infection. This condition may be characterized by fatigue, shortness of breath, difficulty focusing or concentrating ("brain fog"), sleep disorders, fevers, gastrointestinal symptoms, anxiety, and depression. aka Long-COVID-19. ACC/AHA Definition: Symptoms that significantly impair quality of life, which started during or after probable or confirmed acute COVID-19 and have persisted 4 wk to 3 mo after the initial diagnosis of COVID-19	http://purl.obolibrary.org/obo/NCIT_C179263	

Post-Transplant Lymphoproliferative Disorder ; NCIT:C4727	Post-transplant lymphoproliferative disorder (PTLD) is a polyclonal (benign) or clonal (malignant) proliferation of lymphoid cells that develops as a consequence of immunosuppression in a recipient of a solid organ or bone marrow allograft. PTLDs comprise a spectrum ranging from early, Epstein-Barr virus (EBV)-driven polyclonal lymphoid proliferations to EBV-positive or EBV-negative lymphomas of predominantly B-cell or less often T-cell type.	http://purl.obolibrary.org/obo/NCIT_C4727	
post-traumatic stress disorder ; DOID:2055	An anxiety disorder which results from a traumatic experience that results in psychological trauma.	http://purl.obolibrary.org/obo/DOID_2055	
postinfectious encephalitis ; DOID:10993	An encephalitis that is characterized by the immune system mistakenly attacking healthy cells in the brain instead of attacking only the cells causing the infection, often occuring two to three weeks after the initial infection.	http://purl.obolibrary.org/obo/DOID_10993	
pre-eclampsia ; DOID:10591	A hypertension occurring during pregnancy characterized by large amounts of protein in the urine (proteinuria) and edema, usually by the last trimester of pregnancy.	http://purl.obolibrary.org/obo/DOID_10591	HP:0100602
Pregnancy ; NCIT:C25742	The state or condition of having a developing embryo or fetus in the body (uterus), after union of an ovum and spermatozoon, during the period from conception to birth.	http://purl.obolibrary.org/obo/NCIT_C25742	
Prenatal maternal abnormality ; HP:0002686	Prenatal maternal abnormality	http://purl.obolibrary.org/obo/HP_0002686	HP:0002686
Preterm Birth ; NCIT:C92861	Birth when a fetus is less than 37 weeks and 0 days gestational age.	http://purl.obolibrary.org/obo/NCIT_C92861	

Previous ; NCIT:C25627	Occurring prior to something else.	http://purl.obolibrary.org/obo/NCIT_C25627	
primary biliary cholangitis ; DOID:12236	A liver cirrhosis characterized by chronic and slow progressive destruction of intrahepatic bile ducts.	http://purl.obolibrary.org/obo/DOID_12236	HP:0002613
primary immunodeficiency disease ; DOID:612	An immune system disease that results when one or more essential parts of the immune system is missing or not working properly at birth due to a genetic mutation.	http://purl.obolibrary.org/obo/DOID_612	HP:0002721
primary sclerosing cholangitis ; DOID:0060643	A sclerosing cholangitis characterized by fibroobliterative inflammation of the biliary tract, leading to cirrhosis and portal hypertension.	http://purl.obolibrary.org/obo/DOID_0060643	
Primary Sjogren Syndrome ; NCIT:C116985	Sjogren syndrome without a concomitant systemic autoimmune disorder.	http://purl.obolibrary.org/obo/NCIT_C116985	
proctitis ; DOID:3127	A rectal disease that involves inflammation of the rectal mucosa, which results from infection, inflammatory bowel disease, or radiation. Sexually transmitted pathogens (Neisseria gonorrhoeae, Chlamydia trachomatis, herpes simplex virus 1 and 2, Treponema pallidum) and enteric pathogens (Campylobacter, Shigella, Salmonella) are involved in the disease. Symptoms are rectal discomfort and bleeding.	http://purl.obolibrary.org/obo/DOID_3127	
psoriasis ; DOID:8893	A skin disease that is characterized by patches of thick red skin and silvery scales.	http://purl.obolibrary.org/obo/DOID_8893	HP:0003765
psoriatic arthritis ; DOID:9008	An arthritis that is characterized by joint inflammation that usually occurs in combination with psoriasis.	http://purl.obolibrary.org/obo/DOID_9008	

Psychiatric Disorder ; NCIT:C2893	A disorder characterized by behavioral and/or psychological abnormalities, often accompanied by physical symptoms. The symptoms may cause clinically significant distress or impairment in social and occupational areas of functioning. Representative examples include anxiety disorders, cognitive disorders, mood disorders and schizophrenia. (UMLS CUI:C1658764)	http://purl.obolibrary.org/obo/NCIT_C2893	
psychotic disorder ; DOID:2468	A cognitive disorder that involves abnormal thinking and perceptions resulting in a disconnection with reality.	http://purl.obolibrary.org/obo/DOID_2468	
pulmonary hypertension ; DOID:6432	A hypertension characterized by an increase of blood pressure in the pulmonary artery, pulmonary vein or pulmonary capillaries.	http://purl.obolibrary.org/obo/DOID_6432	HP:0002092
pustulosis of palm and sole ; DOID:4398	pustulosis of palm and sole	http://purl.obolibrary.org/obo/DOID_4398	HP:0100847
Radiation Exposure ; NCIT:C61398	Exposure to radioactive materials or ionizing radiation, whether by external irradiation, contact or contamination with radioactive material, or incorporation of radioactive materials, as in the case of certain diagnostic procedures.	http://purl.obolibrary.org/obo/NCIT_C61398	

Radiation Sickness Syndrome ; NCIT:C50723	The complex of symptoms characterizing the disease known as radiation injury, resulting from excessive exposure (greater than 200 rads or 2 gray) of the whole body (or large part) to ionizing radiation. The earliest of these symptoms are nausea, fatigue, vomiting, and diarrhea, which may be followed by epilation, hemorrhage, inflammation of the mouth and throat, and general loss of energy. In severe cases, where the radiation exposure has been approximately 1000 Rad (10 gray) or more, death may occur within two to four weeks. Those who survive six weeks after the receipt of a single large dose of radiation to the whole body may generally be expected to recover. (U.S. Nuclear Regulatory Commission).	http://purl.obolibrary.org/obo/NCIT_C50723	
Raynaud disease ; DOID:10300	Raynaud disease	http://purl.obolibrary.org/obo/DOID_10300	HP:0030880
recent ; PATO:0001484	A quality of a process which occurs near to or not long before the present.	http://purl.obolibrary.org/obo/PATO_0001484	
Recurrent pregnancy loss ; UMLS CUI:C0000809	A medical condition characterized by the loss of two or more pregnancies before the fetus reaches viability. The exact timing for what constitutes "viability" may vary, but losses are often counted before 20 weeks of gestation. Recurrent pregnancy loss is a subset of miscarriage, which is more broadly defined as the loss of a pregnancy before viability. Updated term: Abortion, Habitual.	https://uts.nlm.nih.gov/uts/umls/concept/C0000809	
Recurrent urinary tract infections ; HP:0000010	Repeated infections of the urinary tract. (UMLS CUI:C0262655)	http://purl.obolibrary.org/obo/HP_0000010	HP:0000010

relapse ; OGMS:0000105	A disease stage which is preceded by a remission and characterized by the return of a manifestation of a disease.	http://purl.obolibrary.org/obo/OGMS_0000105	
relapsing polychondritis ; DOID:2556	A chondromalacia that is characterized by recurrent inflammation of cartilage and other tissues throughout the body.	http://purl.obolibrary.org/obo/DOID_2556	
renal artery obstruction ; DOID:2972	renal artery obstruction	http://purl.obolibrary.org/obo/DOID_2972	HP:0001920
Reproductive Surgery ; NCIT:C157970	A surgical procedure in the field of reproductive medicine.	http://purl.obolibrary.org/obo/NCIT_C157970	
respiratory syncytial virus infectious disease ; DOID:1273	A viral infectious disease that results_in infection located_in upper respiratory tract or located_in lower respiratory tract, has_material_basis_in Human respiratory syncytial virus, which is transmitted_by droplet spread of nasal secretions from an infected person while coughing or sneezing, or transmitted_by contaminated fomites. The infection has_symptom runny nose, has_symptom fever, has_symptom cough, has_symptom wheezing, and has_symptom respiratory distress.	http://purl.obolibrary.org/obo/DOID_1273	
Rheumatic Disease ; DOID_1575	A musculoskeletal system disease that involves inflammation or pain in the muscles, joints, or fibrous tissue.	http://purl.obolibrary.org/obo/DOID_1575	
rheumatic heart disease ; DOID:0050827	A heart valve disease that is characterized by repeated inflammation with fibrinous repair caused by an autoimmune reaction to Group A beta-hemolytic streptococci (GAS) that results in valvular damage. The cardinal anatomic changes of the valve include leaflet thickening, commissural fusion, and shortening and thickening of the tendinous cords.	http://purl.obolibrary.org/obo/DOID_0050827	

rheumatoid arthritis ; DOID:7148	An arthritis that is an autoimmune disease which attacks healthy cells and tissue located_in joint.	http://purl.obolibrary.org/obo/DOID_7148	HP:0001370
rhinitis ; DOID:4483	A upper respiratory infectious disease which involves irritation and inflammation of the mucous membrane of the nose due to viruses, bacteria or irritants. The inflammation results in generation of excessive amounts of mucus leading to runny nose, as well as nasal congestion and post-nasal drip.	http://purl.obolibrary.org/obo/DOID_4483	HP:0012384
Rhinovirus Infection ; NCIT:C122572	An infectious process caused by rhinovirus. The virus usually causes upper respiratory infections, but can infect the lower tract as well.	http://purl.obolibrary.org/obo/NCIT_C122572	
rubella ; DOID:8781	A viral infectious disease that results_in infection located_in skin, has_material_basis_in Rubella virus, which is transmitted_by droplet spread of oronasal secretions from the infected person through coughing and sneezing, and transmitted_by congenital method. The infection has_symptom rash on the face which spreads to the trunk and limbs, has_symptom fever, has_symptom lymphadenopathy, has_symptom joint pains, has_symptom headache, and has_symptom conjunctivitis.	http://purl.obolibrary.org/obo/DOID_8781	
salmonellosis ; DOID:0060859	A primary bacterial infectious disease caused by the bacteria of the genus Salmonella. It has sypmtoms diarrhea, fever, vomiting, and abdominal cramps 12 to 72 hours after infection. In most cases, the illness lasts four to seven days, and most people recover without treatment.	http://purl.obolibrary.org/obo/DOID_0060859	

sarcoidosis ; DOID:11335	A hypersensitivity reaction type IV disease characterized by the growth of collections of inflammatory cells (granulomas) in multiple organs.	http://purl.obolibrary.org/obo/DOID_11335	
sarcoma ; DOID:1115	A cell type cancer that has_material_basis_in abnormally proliferating cells derives from embryonic mesoderm.	http://purl.obolibrary.org/obo/DOID_1115	
schistosomiasis ; DOID:1395	A parasitic helminthiasis infectious disease that involves infection of the intestine, urinary tract, skin, liver and spleen caused by multiple species of the trematode fluke of the genus Schistosoma. The symptoms include fever, chills, nausea, abdominal pain, diarrhea, malaise, myalgia, liver and spleen enlargement, rash and hematuria.	http://purl.obolibrary.org/obo/DOID_1395	
scleroderma ; DOID:419	A rheumatic disease that involves the abnormal growth of connective tissue, which supports the skin and internal organs.	http://purl.obolibrary.org/obo/DOID_419	HP:0100324
Seasonal Allergic Rhinitis ; NCIT:C92188	Allergic rhinitis caused by outdoor allergens.	http://purl.obolibrary.org/obo/NCIT_C92188	HP:0003193
Severe Acute Respiratory Syndrome (SARS) ; DOID:2945	A Coronavirus infectious disease that results_in infection located_in respiratory tract, has_material_basis_in SARS coronavirus (SARS-CoV), which is transmitted_by droplet spread of respiratory secretions, transmitted_by ingestion of contaminated food, or transmitted_by fomites. The infection has_symptom fever, has_symptom headache, has_symptom body aches, has_symptom dry cough, and has_symptom hypoxia	http://purl.obolibrary.org/obo/DOID_2945	

severe COVID-19 ; DOID:0081013	A COVID-19 that is characterized by any of (1) Oxygen saturation < 90% on room air, (2) Respiratory rate > 30 breaths/min in adults and children > 5 years old, ≥ 60 breaths/min in children < 2 months old, ≥ 50 in children 2–11 months old, and ≥ 40 in children 1–5 years old, or (3) signs of severe respiratory distress (accessory muscle use, inability to complete full sentences, and, in children, very severe chest wall indrawing, grunting, central cyanosis, or presence of any other general danger signs. https://www.who.int/publications/i/item/WHO-2019-nCoV-clinical-2021-1	http://purl.obolibrary.org/obo/DOID_0081013	
Sexually Transmitted Disorder ; NCIT:C3365	A disorder acquired through sexual contact.	http://purl.obolibrary.org/obo/NCIT_C3365	
Shigellosis ; C157978	An intestinal disease cause by Shigella bacteria.	http://purl.obolibrary.org/obo/NCIT_C157978	
Shoulder Dislocation ; NCIT:C35020	A dislocation of the shoulder joint. (UMLS CUI:C0037005)	http://purl.obolibrary.org/obo/NCIT_C35020	
sickle cell anemia ; DOID:10923	A blood protein disease that is characterized by low number of red blood cells, repeated infections, and periodic episodes of pain, resulting from atypical hemoglobin molecules called hemoglobin S, which can distort red blood cells into a sickle, or crescent, shape. https://en.wikipedia.org/wiki/Sickle_cell_disease, https://ghr.nlm.nih.gov/condition/sickle-cell-disease, https://www.nhlbi.nih.gov/health-topics/sickle-cell-disease	https://www.disease-ontology.org/?id=DOID:10923	

sinusitis ; DOID:0050127	A paranasal sinus disease involving inflammation of the paranasal sinuses resulting from bacterial, fungal, viral infection, allergic or autoimmune issues. Symptoms can include fever, weakness, fatigue, cough and congestion. There may also be mucus drainage in the back of the throat, called postnasal drip.	http://purl.obolibrary.org/obo/DOID_0050127	HP:0000255
Sjogren's syndrome ; DOID:12894	An autoimmune disease that involves attack of immune cells which destroy the exocrine glands that produce tears and saliva.	http://purl.obolibrary.org/obo/DOID_12894	
Small Bowel Transplantation ; NCIT:C157985	Replacing diseased bowel with healthy bowel tissue.	http://purl.obolibrary.org/obo/NCIT_C157985	
Small for Gestational Age ; NCIT:C114934	Smaller than normal size according to sex and gestational age related norms, defined as a weight below the 10th percentile for the gestational age (UMLS CUI: C0235991).	http://purl.obolibrary.org/obo/NCIT_C114934	HP:0001518
smallpox ; DOID:8736	A viral infectious disease that results in infection located in skin, has_material_basis_in Variola virus, which is transmitted by droplets from oral, nasal or pharyngeal mucosa, transmitted by contact with the body fluids, or transmitted by fomites. The infection results in formation of lesions, first on the face, hands and forearms and later on the trunk.	http://purl.obolibrary.org/obo/DOID_8736	

Solid Neoplasm ; NCIT:C9292	A benign or malignant neoplasm arising from tissues that do not include fluid areas. Representative examples include epithelial neoplasms (e.g. lung carcinoma, prostate carcinoma, breast carcinoma, colon carcinoma), and neoplasms arising from the soft tissues and bones (e.g. leiomyosarcoma, liposarcoma, chondrosarcoma, osteosarcoma). Neoplasms originating from the blood or bone marrow (leukemias and myeloproliferative disorders) are not considered solid tumors.	http://purl.obolibrary.org/obo/NCIT_C9292	
Solid Organ Transplant Recipient ; NCIT:C130200	An individual who is receiving a transplant of a solid organ.	http://purl.obolibrary.org/obo/NCIT_C130200	
specific developmental disorder ; DOID:0060038	A developmental disorder of mental health that categorizes specific learning disabilities and developmental disorders affecting coordination.	http://purl.obolibrary.org/obo/DOID_0060038	
spinal muscular atrophy ; DOID:12377	A motor neuron disease that is a degenerative neuromuscular disease characterized by lower motor neuron degeneration associated with progressive muscle weakness and atrophy.	http://purl.obolibrary.org/obo/DOID_12377	HP:0007269
spontaneous abortion ; SYMP:0000199	Spontaneous abortion is a abortion characterized by the naturally occurring expulsion of a nonviable fetus.	http://purl.obolibrary.org/obo/SYMP_0000199	
Spontaneous Preterm Birth ; NCIT:C112864	Preterm birth from 20 weeks to 36 weeks, 6 days of gestation associated with one of the following: classic preterm labor or preterm premature rupture of membranes.	http://purl.obolibrary.org/obo/NCIT_C112864	
Staphylococcus Aureus Infection ; NCIT:C122576	An infectious process in which the bacteria Staphylococcus aureus is present.	http://purl.obolibrary.org/obo/NCIT_C122576	HP:0020072

Stevens-Johnson syndrome ; DOID:0050426	A skin disease that is characterized by ulceration of less than 10 percent of the surface area of the body. The disease is often precipitated by the use of medications, such as antibiotics or antiepileptics, or onset of infection.	http://purl.obolibrary.org/obo/DOID_0050426	
stillbirth ; SYMP:0000849	Stillbirth is a reproductive system symptom characterized by the birth of a dead fetus, occurs when a fetus which has died in the uterus or during labor or delivery exits a woman's body.	http://purl.obolibrary.org/obo/SYMP_0000849	
Streptococcal Pharyngitis ; NCIT:C116003	Inflammation of the throat due to Streptococcus pyogenes.	http://purl.obolibrary.org/obo/NCIT_C116003	HP:0020096
Streptococcus pneumonia ; DOID:0040084	A bacterial pneumonia has_material_basis_in Streptococcus pneumoniae.	http://purl.obolibrary.org/obo/DOID_0040084	
substance abuse ; DOID:302	A substance-related disorder that involves a maladaptive pattern of substance use leading to significant impairment in functioning.	http://purl.obolibrary.org/obo/DOID_302	
substance-related disorder ; DOID:303	A disease of mental health involving the abuse or dependence on a substance that is ingested in order to produce a high, alter one's senses, or otherwise affect functioning. (UMLS CUI:C0038586)	http://purl.obolibrary.org/obo/DOID_303	
Sweet syndrome ; DOID:0080746	A skin disease that is characterized by sudden onset of well defined tender plaques or nodules accompanied by fever, arthralgias, ocular inflammation, headaches and, rarely, oral or genital lesions.	http://purl.obolibrary.org/obo/DOID_0080746	

swine influenza ; DOID:0050211	An influenza that results_in infection located_in respiratory tract of pigs and humans, has_material_basis_in Influenza C virus, or has_material_basis_in Influenza A virus subtypes (H1N1, H1N2, H3N1, H3N2, and H2N3), which are transmitted_by direct contact with infected pigs. The infection in humans has_symptom fever, has_symptom lethargy, has_symptom lack of appetite, has_symptom coughing, has_symptom runny nose, has_symptom sore throat, has_symptom nausea, has_symptom vomiting, and has_symptom diarrhea.	http://purl.obolibrary.org/obo/DOID_0050211	
systemic lupus erythematosus ; DOID:9074	A lupus erythematosus that is an inflammation of connective tissue marked by skin rashes, joint pain and swelling, inflammation of the kidneys and inflammation of the tissue surrounding the heart.	http://purl.obolibrary.org/obo/DOID_9074	HP:0002725
systemic scleroderma ; DOID:418	A scleroderma that is characterized by fibrosis (or hardening) of the skin and major organs, as well as vascular alterations, and autoantibodies.	http://purl.obolibrary.org/obo/DOID_418	HP:0100324
tetanus ; DOID:11338	A primary bacterial infectious disease that results in prolonged contraction of skeletal muscle fibers, has_material_basis_in Clostridium tetani, which produces tetanospasmin, a neurotoxin, which is carried to the brain and spinal cord, where it binds irreversibly to receptors inhibiting neurotransmission. Damaged upper motor neurons cannot control reflex responses to afferent sensory stimuli.	http://purl.obolibrary.org/obo/DOID_11338	

tonsillitis ; DOID:10456	An upper respiratory tract disease which is characterized by inflammation of the tonsils resulting from bacterial (Group A streptococcus) and viral (Epstein-Barr virus, adenovirus) infections. Symptoms include a severe sore throat, painful or difficult swallowing, coughing, headache, myalgia, fever and chills.	http://purl.obolibrary.org/obo/DOID_10456	HP:0011110
TORCH syndrome ; DOID:0080835	A syndrome that is characterized by congenital infection with toxoplasmosis, rubella, cytomegalovirus, herpes simplex, and other organisms.	http://purl.obolibrary.org/obo/DOID_0080835	
transverse myelitis ; DOID:0080743	A myelitis that is characterized by a band-like sensation across the trunk of the body, with sensory changes below.	http://purl.obolibrary.org/obo/DOID_0080743	
tuberculosis ; DOID:399	A primary bacterial infectious disease that is located_in lungs, located_in lymph nodes, located_in pericardium, located_in brain, located_in pleura or located_in gastrointestinal tract, has_material_basis_in Mycobacterium tuberculosis, which is transmitted_by droplets released into the air when an infected person coughs or sneezes.	http://purl.obolibrary.org/obo/DOID_399	
tularemia ; DOID:2123	A primary bacterial infectious disease that has_material_basis_in Francisella tularensis, which is transmitted by dog tick bite (Dermacentor variabilis), transmitted by deer flies (Chrysops sp) or transmitted by contact with infected animal tissues.	http://purl.obolibrary.org/obo/DOID_2123	
type 1 diabetes mellitus ; DOID:9744	A diabetes mellitus that is characterized by destruction of pancreatic beta cells resulting in absent or extremely low insulin production.	http://purl.obolibrary.org/obo/DOID_9744	HP:0100651

type 2 diabetes mellitus ; DOID:9352	A diabetes mellitus that is characterized by high blood sugar, insulin resistance, and relative lack of insulin.	http://purl.obolibrary.org/obo/DOID_9352	HP:0005978
typhoid fever ; DOID:13258	A primary bacterial infectious disease that is a communicable systemic illness, has_material_basis_in Salmonella enterica subsp enterica serovar Typhi, which is transmitted_by ingestion of food or water contaminated with the feces of an infected person. The infection has_symptom fever, has_symptom diarrhea, has_symptom prostration, has_symptom headache, has_symptom splenomegaly, has_symptom liver enlargement, has_symptom eruption of rose-colored spots, and has_symptom leukopenia.	http://purl.obolibrary.org/obo/DOID_13258	
ulcerative colitis ; DOID:8577	A colitis that is predominantly confined to the mucosa located_in colon and includes characteristic ulcers, or open sores.	http://purl.obolibrary.org/obo/DOID_8577	HP:0100279
upper respiratory tract disease ; DOID:974	A respiratory system disease which involves the upper respiratory tract.	http://purl.obolibrary.org/obo/DOID_974	
urinary tract obstruction ; DOID:5200	Urinary tract obstruction is a blockage that inhibits the flow of urine through its normal path (the urinary tract), including the kidneys, ureters, bladder, and urethra. Blockage can be complete or partial. Blockage can lead to kidney damage, kidney stones, and infection.	http://purl.obolibrary.org/obo/DOID_5200	
uveitis ; DOID:13141	An uveal disease is characterized by inflammation of any of the layers of the uvea of the eye, which includes the iris, ciliary body, and choroid.	http://purl.obolibrary.org/obo/DOID_13141	HP:0000554

vasculitis ; DOID:865	A vascular disease that is characterized by inflammation of the blood vessels.	http://purl.obolibrary.org/obo/DOID_865	HP:0002633
Viral Respiratory Tract Infection ; NCIT:C27219	A respiratory tract infection caused by a virus. Viruses represent the most common causes of upper and lower respiratory tract infections and include rhinoviruses, influenza viruses, parainfluenza viruses, and respiratory syncytial virus.	http://purl.obolibrary.org/obo/NCIT_C27219	
viral tropism ; MESH:D056189	The specificity of a virus for infecting a particular type of cell or tissue.	http://id.nlm.nih.gov/mesh/D056189	
vitiligo ; DOID:12306	An autoimmune disease that causes depigmentation of patches of skin resulting from loss of function or death of melanoctyes.	http://purl.obolibrary.org/obo/DOID_12306	HP:0001045
Water-Electrolyte Imbalance ; OMIT:0015710	Water-Electrolyte Imbalance	http://purl.obolibrary.org/obo/OMIT_0015710	
weight loss ; SYMP:0000178	weight loss	http://purl.obolibrary.org/obo/SYMP_0000178	
West Nile encephalitis ; DOID:2365	A viral infectious disease that results in inflammation located in brain, has_material_basis_in West Nile virus, which is transmitted_by Culex, transmitted by Aedes, and transmitted_by Anopheles species of mosquitoes. The infection has_symptom high fever, has_symptom headache, has_symptom neck stiffness, has_symptom stupor, has_symptom disorientation, has_symptom coma, has_symptom tremors, has_symptom convulsions, has_symptom muscle weakness, has_symptom vision loss, has_symptom numbness, and has_symptom paralysis.	http://purl.obolibrary.org/obo/DOID_2365	

West Nile fever ; DOID:2366	A viral infectious disease that results_in infection, has_material_basis_in West Nile virus, which is transmitted_by Culex and transmitted_by Aedes mosquitoes. The infection has_symptom fever, has_symptom sore throat, has_symptom headache, has_symptom body ache, has_symptom nausea, has_symptom maculopapular rash and has_symptom vomiting.	http://purl.obolibrary.org/obo/DOID_2366	
X-linked agammaglobulinemia ; NCIT_C3822	An immunodeficiency state characterized (usually) by profoundly low concentrations of serum immunoglobulins of all classes, although occasionally significant amounts of one or more isotypes can be found. The fundamental defect in XLA affects early lineage B cells	http://purl.obolibrary.org/obo/NCIT_C3822	
yellow fever ; DOID:9682	A viral infectious disease that results in infection, has_material_basis_in Yellow fever virus, which is transmitted by Aedes, transmitted by Haemagogus, or transmitted by Sabethes species of mosquitoes. The infection has symptom fever, has symptom muscle pain, has symptom backache, has symptom headache, has symptom shivers, has symptom loss of appetite, has symptom jaundice, and has symptom bleeding from the mouth, nose, eyes or stomach leading to vomitus containing blood.	http://purl.obolibrary.org/obo/DOID_9682	
Zika fever ; DOID:0060478	A viral infectious disease that has_material_basis in Zika virus, which is transmitted_by Aedes aegypti mosquitoes and targets neural progenitor cells and neuronal cells in all stages of maturity and has_symptom fever, has_symptom rash, has_symptom headaches and has_symptom joint pain.	http://purl.obolibrary.org/obo/DOID_0060478	

18. **lk_disease_condition**

Name	Description	Link	ID
condition_preferred			
acquired immunodeficiency syndrome	A Human immunodeficiency virus infectious disease that results_in reduction in the numbers of CD4-bearing helper T cells below 200 per microliter of blood or 14% of all lymphocytes thereby rendering the subject highly vulnerable to life-threatening infections and cancers, has_material_basis_in Human immunodeficiency virus 1 or has_material_basis_in Human immunodeficiency virus 2, which are transmitted_by sexual contact, transmitted_by transfer of blood, semen, vaginal fluid, pre-ejaculate, or breast milk, transmitted_by congenital method, and transmitted_by contaminated needles. Opportunistic infections are common in people with AIDS.	http://purl.obolibrary.org/obo/DOID_635	
acute disseminated encephalomyelitis	An encephalomyelitis characterized by inflammation located in brain and located in spinal cord that damages myelin. It usually occurs after viral infection, but also following vaccination, bacterial or parasitic infection.	http://purl.obolibrary.org/obo/DOID_639	
Acute Respiratory Distress Syndrome	Progressive and life-threatening pulmonary distress in the absence of an underlying pulmonary condition, usually following major trauma or surgery. Cases of neonatal respiratory distress syndrome are not included in this definition.	http://purl.obolibrary.org/obo/NCIT_C3353	
Addison's disease	An adrenal cortical hypofunction that is characterized by insufficient steroid hormone production by the adrenal glands.	http://purl.obolibrary.org/obo/DOID_13774	HP:0008207

Aging	The process of change in the structure and function of an organism that occurs with the passage of time.	http://purl.obolibrary.org/obo/NCIT_C16269	
alcohol dependence	A substance dependence that is characterized by tolerance, withdrawal symptoms, increasing use, persistent desire to decrease consumption, time spent obtaining or recovering from alcohol caused by a physical and psychological dependence on alcohol. (UMLS CUI:C0001973)	http://purl.obolibrary.org/obo/DOID_0050741	
alcohol use disorder	A substance abuse that involves the recurring use of alcoholic beverages despite negative consequences.	http://purl.obolibrary.org/obo/DOID_1574	
allergic hypersensitivity disease	An immune system disease that is an exaggerated immune response to allergens, such as insect venom, dust mites, pollen, pet dander, drugs or some foods.	http://purl.obolibrary.org/obo/DOID_1205	HP:0012393
allergic rhinitis	A rhinitis that is an allergic inflammation and irritation of the nasal airways involving sneezing, runny nose, nasal congestion, itching and tearing of the eyes caused by exposure to an allergen such as pollen, dust, mold, animal dander and droppings of cockroaches or house dust mites.	http://purl.obolibrary.org/obo/DOID_4481	HP:0003193
alopecia areata	An autoimmune disease resulting in the loss of hair on the scalp and elsewhere on the body initially causing bald spots.	http://purl.obolibrary.org/obo/DOID_986	HP:0002232

Alzheimer's disease	A tauopathy that is characterized by memory lapses, confusion, emotional instability and progressive loss of mental ability and results in progressive memory loss, impaired thinking, disorientation, and changes in personality and mood starting and leads in advanced cases to a profound decline in cognitive and physical functioning and is marked histologically by the degeneration of brain neurons especially in the cerebral cortex and by the presence of neurofibrillary tangles and plaques containing beta-amyloid.	http://purl.obolibrary.org/obo/DOID_10652	HP:0002511
anemia	A hematopoietic system disease that is characterized by a decrease in the normal number of red blood cells.	http://purl.obolibrary.org/obo/DOID_2355	HP:0001903
Angina	Paroxysms of chest pain due to reduced oxygen to the heart. (UMLS CUI:C0002962)	http://purl.obolibrary.org/obo/NCIT_C51221	
anthrax disease	A primary bacterial infectious disease that results_in infection located_in skin, located_in lung lymph nodes or located_in gastrointestinal tract, has_material_basis_in Bacillus anthracis, transmitted_by contact with infected animals or animal products, transmitted_by airborne spores or transmitted_by ingestion of undercooked meat from infected animals and has_symptom skin ulcer, has_symptom nausea, has_symptom poor appetite, has_symptom bloody diarrhea, has_symptom fever or has_symptom shortness of breath.	http://purl.obolibrary.org/obo/DOID_7427	

antiphospholipid syndrome	An autoimmune disease that is characterized by recurrent venous or arterial thrombosis and/or fetal losses associated with characteristic elevated levels of antibodies directed against membrane anionic phospholipids (anticardiolipin).	http://purl.obolibrary.org/obo/DOID_2988	
antisynthetase syndrome	An autoimmune disease that is characterized by myositis, arthralgia, Raynaud phenomenon, mechanic hands, interstitial lung disease, and serum autoantibodies to aminoacyl transfer RNA synthetases.	http://purl.obolibrary.org/obo/DOID_0080744	
anxiety disorder	A cognitive disorder that involves an excessive, irrational dread of everyday situations.	http://purl.obolibrary.org/obo/DOID_2030	
arrhythmia	Arrhythmia is a cardiovascular system symptom consisting of an alteration in rhythm of the heartbeat either in time or force.	http://purl.obolibrary.org/obo/SYMP_0000287	
aspiration pneumonia	A bacterial pneumonia which is an acute pulmonary inflammatory response that develops after the inhalation of colonized oropharyngeal material containing bacteria. It is seen in individuals with dysphagia and gastric dysmotility. The disease has_symptom tachypnea and has_symptom cough. (UMLS CUI:C0032290)	http://purl.obolibrary.org/obo/DOID_0050152	
asthma	A bronchial disease that is characterized by chronic inflammation and narrowing of the airways, which is caused by a combination of environmental and genetic factors. The disease has_symptom recurring periods of wheezing (a whistling sound while breathing), has_symptom chest tightness, has_symptom shortness of breath, has_symptom mucus production and has_symptom coughing.	http://purl.obolibrary.org/obo/DOID_2841	HP:0002099

atopic dermatitis	An allergic contact dermatitis that is a chronically relapsing inflammatory allergic response located_in the skin that causes itching and flaking.	http://purl.obolibrary.org/obo/DOID_3310	HP:0001047
atrial fibrillation	A heart conduction disease that is characterized by uncoordinated electrical activity in the heart's upper chambers (the atria), which causes the heartbeat to become fast and irregular and has symptoms palpitations, weakness, fatigue, lightheadedness, dizziness, confusion, shortness of breath and chest pain. (UMLS CUI:C0004238)	http://purl.obolibrary.org/obo/DOID_0060224	
autoimmune cardiomyopathy	An autoimmune disease of cardiovascular system that is characterized by deterioration of the function of the heart muscle.	http://purl.obolibrary.org/obo/DOID_0040095	
autoimmune cholangitis	An autoimmune hepatitis that is characterized by primary biliary cirrhosis clinical, biochemical, and histologic characteristics with antinuclear antibody positive sera.	http://purl.obolibrary.org/obo/DOID_0080742	
autoimmune disease	An immune system disease that is an overactive immune response of the body against substances and tissues normally present in the body resulting from an abnormal functioning of the immune system that results in the production of antibodies or T cell directed against the host tissues.	http://purl.obolibrary.org/obo/DOID_417	
autoimmune disease of endocrine system	An autoimmune disease that is the abnormal functioning of the immune system resulting in production of antibodies or T cells against cells and/or tissues in the endocrine system.	http://purl.obolibrary.org/obo/DOID_0060005	

autoimmune disease of musculoskeletal system	An autoimmune disease that is the abnormal functioning of the immune system that causes your immune system to produce antibodies or T cells against cells and/or tissues in the musculoskeletal system.	http://purl.obolibrary.org/obo/DOID_0060032	
autoimmune glomerulonephritis	An autoimmune disease of urogenital tract that is located_in the renal glomerulus.	http://purl.obolibrary.org/obo/DOID_0040094	
autoimmune hemolytic anemia	An autoimmune disease of blood that is characterized by deficient red blood cells caused by auto-antibodies.	http://purl.obolibrary.org/obo/DOID_718	HP:0001890
autoimmune hepatitis	An autoimmune disease of gastrointestinal tract that results_in inflammation located_in liver caused by the body's immune system attacking the liver cells.	http://purl.obolibrary.org/obo/DOID_2048	
autoimmune peripheral neuropathy	An autoimmune disease of peripheral nervous system that results in peripheral neuropathy.	http://purl.obolibrary.org/obo/DOID_0040087	
autoimmune thrombocytopenic purpura	A primary thrombocytopenia that involves relatively few platelets in blood as a result of autoantibodies.	http://purl.obolibrary.org/obo/DOID_8924	HP:0001973
avian influenza	An influenza that results in infection located in respiratory tract of humans, domestic and wild birds, has_material_basis_in Influenza A virus, which is transmitted by contact with infected poultry. Five strains of avian influenza A viruses (H5N1, H7N3, H7N2, H7N7 and H9N2) are known to cause human infections. The infection has_symptom fever, has_symptom cough, has_symptom sore throat, has_symptom muscle aches, has_symptom nausea, has_symptom diarrhea, has_symptom vomiting, has_symptom neurologic changes, has_symptom pneumonia, and has_symptom acute respiratory distress.	http://purl.obolibrary.org/obo/DOID_4492	

Bariatric Surgery	Surgery performed in morbidly obese patients to help promote weight loss. The procedure aims at the reduction of the stomach size and it is usually achieved either with the implantation of a medical device or the removal of part of the stomach.	http://purl.obolibrary.org/obo/NCIT_C84399	
Bilateral pleural effusion (disorder)	Bilateral pleural effusion (disorder) (UMLS CUI:C0747635)	http://purl.bioontology.org/ontology/SNOMEDCT/425802001	
biliary atresia	A cholestasis characterized by blockage of the ducts that carry bile from the liver to the gallbladder.	http://purl.obolibrary.org/obo/DOID_13608	HP:0005912
blood coagulation disease	A hematopoietic system disease that is characterized by abnormal blood clotting or bleeding.	http://purl.obolibrary.org/obo/DOID_1247	HP:0001928
Blood Transfusion	The injection of whole blood or a blood component directly into the bloodstream.	http://purl.obolibrary.org/obo/NCIT_C15192	
bone development disease	A bone disease that results_in abnormal growth and development located_in bone or located_in cartilage.	http://purl.obolibrary.org/obo/DOID_0080006	
bone disease	A connective tissue disease that affects the structure or development of bone or causes an impairment of normal bone function.	http://purl.obolibrary.org/obo/DOID_0080001	
brain glioblastoma multiforme	A brain glioma that has_material_basis_in abnormally proliferating cells derives_from glial cells, has_symptom seizure, headaches, nausea and vomiting, memory loss, changes to personality, mood or concentration; and localized neurological problems.	http://purl.obolibrary.org/obo/DOID_3073	
brain glioma	A brain cancer that has_material_basis_in glial cells.	http://purl.obolibrary.org/obo/DOID_0060108	

breast cancer	A thoracic cancer that originates in the mammary gland.	http://purl.obolibrary.org/obo/DOID_1612	HP:0003002
bronchiectasis	A bronchial disease that is a chronic inflammatory condition of one or more bronchi or bronchioles marked by dilatation and loss of elasticity of the walls resulting from damage to the airway wall leading to the formation of small sacs on the bronchial wall and impairment of cilia mobility in the lung. Inflammation of the bronchial wall increases mucus secretion which serves as a breeding ground for bacteria. Bronchiectasis is caused by repeated respiratory infections, immune deficiency disorders, hereditary disorders (cystic fibrosis or primary ciliary dyskinesia), mechanical factors (inhaled object or a lung tumor) or inhaling toxic substances. (UMLS CUI:C0006267)	http://purl.obolibrary.org/obo/DOID_9563	
bronchiolitis	A lung disease that is an inflammation of the bronchioles, the smallest air passages of the lungs. It is caused by viruses and bacteria. The disease has_symptom cough, has_symptom wheezing, has_symptom shortness of breath, has_symptom fever, has_symptom nasal flaring in infants and has_symptom bluish skin due to lack of oxygen.	http://purl.obolibrary.org/obo/DOID_2942	HP:0011950
bronchitis	A bronchial disease that is an inflammation of the bronchial tubes. It is caused by bacteria and viruses. The disease has_symptom cough with mucus, has_symptom shortness of breath, has_symptom low fever and has_symptom chest tightness.	http://purl.obolibrary.org/obo/DOID_6132	HP:0012387

Bronchopulmonary Dysplasia	Chronic lung disease requiring treatment with oxygen for at least 28 days and with a spectrum of severity from mild to severe, that predominantly affects premature infants. While the radiologic pattern is typical in the closer to term patient, the pattern in the small preterm infant is very non-discrete and variable.	http://purl.obolibrary.org/obo/NCIT_C90599	
bullous skin disease	A dermatitis that is characterized by blisters filled with a watery fluid, located_in skin. The disease is associated with the amount of gluten ingested.	http://purl.obolibrary.org/obo/DOID_8502	
cancer	A disease of cellular proliferation that is malignant and primary, characterized by uncontrolled cellular proliferation, local cell invasion and metastasis.	http://purl.obolibrary.org/obo/DOID_162	HP:0002664
cardiac arrest	A congestive heart failure characterized by a sudden stop in effective blood circulation due to the failure of the heart to contract effectively or at all.	http://purl.obolibrary.org/obo/DOID_0060319	HP:0001695
cardiomyopathy	A heart disease and a myopathy that is characterized by deterioration of the function of the heart muscle.	http://purl.obolibrary.org/obo/DOID_0050700	HP:0001638
cardiovascular system disease	A disease of anatomical entity which occurs in the blood, heart, blood vessels or the lymphatic system that passes nutrients (such as amino acids and electrolytes), gases, hormones, blood cells or lymph to and from cells in the body to help fight diseases and help stabilize body temperature and pH to maintain homeostasis.	http://purl.obolibrary.org/obo/DOID_1287	HP:0001626

celiac disease	An autoimmune disease of gastrointestinal tract that is caused by a reaction located_in small intestine to gliadin, a prolamin (gluten protein) found in wheat, and similar proteins found in the crops of the tribe Triticeae. The disease is associated with HLA-DQ gene. It has_symptom abdominal pain, has_symptom constipation, has_symptom diarrhea, has_symptom nausea and vomiting, and has_symptom loss of appetite.	http://purl.obolibrary.org/obo/DOID_10608	HP:0002608
Cephalohematoma	A subperiosteal hemorrhage limited to the surface of one cranial bone, a usually benign condition seen in the newborn as a result of bone trauma.	http://purl.obolibrary.org/obo/NCIT_C50484	
cerebral palsy	A brain disease that is caused by damage to the motor control centers of the developing brain during pregnancy, during childbirth or after birth, which affects muscle movement and balance.	http://purl.obolibrary.org/obo/DOID_1969	HP:0100021
cerebrovascular disease	An vascular disease that is characterized by dysfunction of the blood vessels supplying the brain.	http://purl.obolibrary.org/obo/DOID_6713	
chickenpox	A viral infectious disease that results_in infection located_in skin, has_material_basis_in Human herpesvirus 3, which is transmitted_by direct contact with secretions from the rash, or transmitted_by droplet spread of respiratory secretions. The infection has_symptom anorexia, has_symptom myalgia, has_symptom nausea, has_symptom fever, has_symptom headache, has_symptom sore throat, and has_symptom blisters.	http://purl.obolibrary.org/obo/DOID_8659	

chikungunya	A viral infectious disease that results_in infection located_in joint, has_material_basis_in Chikungunya virus, which is transmitted_by Aedes mosquito bite. The infection has_symptom fever, has_symptom arthralgia, and has_symptom maculopapular rash.	http://purl.obolibrary.org/obo/DOID_0050012	
childhood type dermatomyositis	childhood type dermatomyositis	http://purl.obolibrary.org/obo/DOID_14203	
chlamydia	A commensal bacterial infectious disease that is caused by Chlamydia trachomatis.	https://disease-ontology.org/?id=DOID:11263	
choledochal cyst	choledochal cyst	http://purl.obolibrary.org/obo/DOID_899	HP:0100890
cholera	A primary bacterial infectious disease that is described as an acute, diarrheal illness caused by infection of the intestine with the bacterium Vibrio cholerae, which is characterized by profuse watery diarrhea, vomiting, leg cramps, circulatory collapse and shock.	http://purl.obolibrary.org/obo/DOID_1498	
chorioamnionitis	A placenta disease that is an inflammation of the fetal membranes (amnion and chorion) due to a bacterial infection.	http://purl.obolibrary.org/obo/DOID_0050697	
chromosomal disease	A genetic disease that has_material_basis_in extra, missing, or re-arranged chromosomes.	http://purl.obolibrary.org/obo/DOID_0080014	
chronic disease course	A disease course that (a) does not terminate in a return to normal homeostasis and (b) would, absent intervention, fall within abnormal homeostatic range.	http://purl.obolibrary.org/obo/OGMS_0000064	

Chronic Fatigue Syndrome	A syndrome of unknown etiology. Chronic fatigue syndrome (CFS) is a clinical diagnosis characterized by an unexplained persistent or relapsing chronic fatigue that is of at least six months' duration, is not the result of ongoing exertion, is not substantially alleviated by rest, and results in substantial reduction of previous levels of occupational, educational, social, or personal activities. Common concurrent symptoms of at least six months duration include impairment of memory or concentration, diffuse pain, sore throat, tender lymph nodes, headaches of a new type, pattern, or severity, and nonrestorative sleep. The etiology of CFS may be viral or immunologic. Neurasthenia and fibromyalgia may represent related disorders. Also known as myalgic encephalomyelitis.	http://purl.obolibrary.org/obo/NCIT_C3037	
chronic kidney disease	A kidney failure that is characterized by the gradual loss of kidney function. (UMLS CUI:C1561643)	http://purl.obolibrary.org/obo/DOID_784	
Chronic Liver Disease	Hepatic necrosis, inflammation, or scarring due to any cause that persists for more than 6 months. Manifestations may include signs and symptoms of cholestasis, portal hypertension, and/or abnormal liver function tests. (UMLS CUI:C0341439)	http://purl.obolibrary.org/obo/NCIT_C113609	
chronic obstructive pulmonary disease	An obstructive lung disease that is characterized by irreversible airflow obstruction due to chronic bronchitis, emphysema, and/or small airways disease.	http://purl.obolibrary.org/obo/DOID_3083	HP:0006510

chronic plaque psoriasis	Chronic plaque psoriasis is the most common presentation of psoriasis. It presents as small to large, well-demarcated, red, scaly and thickened areas of skin. It most likely to affect elbows, knees, and lower back but may arise on any part of the body.	https://dermnetnz.org/topics/chronic-plaque-psoriasis/	HP:0003765
Chronic Sinusitis	Inflammation of the paranasal sinuses that typically lasts beyond eight weeks. It is caused by infections, allergies, and the presence of sinus polyps or deviated septum. Signs and symptoms include headache, nasal discharge, swelling in the face, dizziness, and breathing difficulties. (UMLS CUI:C0149516)	http://purl.obolibrary.org/obo/NCIT_C35151	
chronic spontaneous urticaria	A chronic urticaria that is characterized by urticaria independent of any exogenous stimulus.	http://purl.obolibrary.org/obo/DOID_0080749	
cirrhosis	liver cirrhosis	http://purl.obolibrary.org/obo/DOID_5082	
clinically isolated syndrome	A first neurologic episode caused by inflammation/demyelination of one or more central nervous system sites that lasts at least 24 hours. (SNOMEDCT_US)	https://uts.nlm.nih.gov/uts/umls/concept/C2921627	
Clostridium difficile colitis	A colitis characterized by an overgrowth of Clostridium difficile bacteria.	http://purl.obolibrary.org/obo/DOID_0060185	
colitis	An inflammatory bowel disease that involves inflammation located_in colon.	http://purl.obolibrary.org/obo/DOID_0060180	HP:0002583
colorectal cancer	A large intestine cancer that is located_in the colon and/or located_in the rectum.	http://purl.obolibrary.org/obo/DOID_9256	HP:0100834

common variable immunodeficiency	An agammaglobulinemia that is results in insufficient production of antibodies needed to respond to exposure of pathogens and is characterized by low Ig levels with phenotypically normal B cells that can proliferate but do not develop into Ig-producing cells.	http://purl.obolibrary.org/obo/DOID_12177	
congenital adrenal insufficiency	An adrenal gland disease that is characterized by cortisol deficiency, hypoaldosteronism and excessive or insufficient sex hormones, has_material_basis_in the mutation in the gene for 21-hydroxylase, 11beta-hydroxylase, 3beta-hydroxysteroid, 17alpha-hydroxylase or 20,22-desmolase.	http://purl.obolibrary.org/obo/DOID_0050546	
congenital heart disease	congenital heart disease	http://purl.obolibrary.org/obo/DOID_1682	HP:0001627
congenital syphilis	A syphilis that results_in a multisystem infection in the fetus via the placenta.	http://purl.obolibrary.org/obo/DOID_9856	
congestive heart failure	A heart disease that is characterized by any structural or functional cardiac disorder that impairs the ability of the heart to fill with or pump a sufficient amount of blood throughout the body.	http://purl.obolibrary.org/obo/DOID_6000	HP:0001635
conjunctivitis	A conjunctival disease characterized by an inflammation of the conjunctiva, the outermost layer of the eye and the inner surface of the eyelids.	http://purl.obolibrary.org/obo/DOID_6195	HP:0000509
connective tissue disease	A musculoskeletal system disease that affects tissues such as skin, tendons, and cartilage.	http://purl.obolibrary.org/obo/DOID_65	

coronary artery disease	An artery disease that is characterized by plaque building up along the inner walls of the arteries of the heart resulting in a narrowing of the arteries and a reduced blood supply to the cardiac muscles.	http://purl.obolibrary.org/obo/DOID_3393	HP:0001677
COVID-19	A Coronavirus infection that is characterized by fever, cough and shortness of breath and that has_material_basis_in SARS-CoV-2.	http://purl.obolibrary.org/obo/DOID_0080600	
COVID-19-Associated Acute Respiratory Distress Syndrome	Acute respiratory distress syndrome caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)	http://purl.obolibrary.org/obo/NCIT_C171551	
cranial nerve disease	A neuropathy that is located_in one of the twelve cranial nerves.	http://purl.obolibrary.org/obo/DOID_5656	HP:0006824
critical COVID-19	A COVID-19 that is characterized by the criteria for acute respiratory distress syndrome (ARDS), sepsis, septic shock, or other conditions that would normally require the provision of life sustaining therapies such as mechanical ventilation (invasive or non-invasive) or vasopressor therapy. https://www.who.int/publications/i/item/WHO-2019-nCoV-clinical-2021-1	http://purl.obolibrary.org/obo/DOID_0081012	
Crohn's disease	An intestinal disease that involves inflammation located_in intestine.	http://purl.obolibrary.org/obo/DOID_8778	HP:0100280
cutaneous lupus erythematosus	A lupus erythematosus that causes skin lesions on parts of the body that are exposed to sunlight.	http://purl.obolibrary.org/obo/DOID_0050169	
cystic fibrosis	A syndrome that is characterized by the buildup of thick, sticky mucus that can damage many organs.	http://purl.obolibrary.org/obo/DOID_1485	

cystic kidney disease	Polycystic kidney disease (PKD) is an inherited disorder in which clusters of cysts develop primarily within your kidneys, causing your kidneys to enlarge and lose function over time. Cysts are noncancerous round sacs containing fluid. The cysts vary in size, and they can grow very large.	http://purl.obolibrary.org/obo/DOID_2975	HP:0000107
cystinosis	A lysosomal storage disease characterized by the abnormal accumulation of cystine in the lysosomes. It follows an autosomal recessive inheritance pattern and that has_material_basis_in mutations in the CTNS gene, located on chromosome 17.	http://purl.obolibrary.org/obo/DOID_1064	
Cytogenetically Normal Acute Myeloid Leukemia	Acute myeloid leukemia not associated with cytogenetic abnormalities.	http://purl.obolibrary.org/obo/NCIT_C122687	HP:0004808
Cytomegaloviral Infection	A herpesvirus infection caused by Cytomegalovirus. Healthy individuals generally do not produce symptoms. However, the infection may be life-threatening in affected immunocompromised patients. The virus may cause retinitis, esophagitis, gastritis, and colitis. Morphologically, it is characterized by the presence of intranuclear inclusion bodies.	http://purl.obolibrary.org/obo/NCIT_C53649	
dementia	A cognitive disorder resulting from a loss of brain function affecting memory, thinking, language, judgement and behavior.	http://purl.obolibrary.org/obo/DOID_1307	
Dementia with psychosis	No definition yet. Semantic Types:Mental or Behavioral Dysfunction	https://uts.nlm.nih.gov/uts/umls/concept/C0543884	

dengue disease	A viral infectious disease that results in infection, has_material_basis_in Dengue virus [NCBITaxon:12637] with four serotypes (Dengue virus 1, 2, 3 and 4), which are transmitted by Aedes mosquito bite. The infection has symptom fever, has symptom severe headache, has symptom severe pain behind the eyes, has symptom joint pain, has symptom muscle and bone pain, has symptom rash, and has symptom mild bleeding.	http://purl.obolibrary.org/obo/DOID_12205	
dengue hemorrhagic fever	A dengue disease that occurs when a person experiences a second infection with a heterologous Dengue virus serotype, which is transmitted_by Aedes mosquito bite. The infection has_symptom hemorrhagic lesions of the skin, has_symptom thrombocytopenia, has_symptom reduction in the fluid part of the blood, and has_symptom high fever.	http://purl.obolibrary.org/obo/DOID_12206	
Dependence on peritoneal dialysis due to end stage renal disease	Dependence on peritoneal dialysis due to end stage renal disease (UMLS CUI:C1997877)	http://purl.bioontology.org/ontology/SNOMEDCT/428937001	
dermatomyositis	A myositis that results_in inflammation located_in muscle or located_in skin where a skin rash is often seen prior to the onset of muscle weakness. The disease may result from either a viral infection or an autoimmune reaction.	http://purl.obolibrary.org/obo/DOID_10223	
dermatophytosis	A cutaneous mycosis that results_in fungal infection located_in scalp, located_in glabrous skin, or located_in nail, has_material_basis_in Ascomycota fungi that belong to a group called dermatophytes, which have the ability to utilize keratin as a nutrient source.	http://purl.obolibrary.org/obo/DOID_8913	

developmental disorder of mental health	A disease of mental health that occur during a child's developmental period between birth and age 18 resulting in retarding of the child's psychological or physical development.	http://purl.obolibrary.org/obo/DOID_0060037	
diabetes mellitus	A glucose metabolism disease characterized by chronic hyperglycaemia with disturbances of carbohydrate, fat and protein metabolism resulting from defects in insulin secretion, insulin action, or both.	http://purl.obolibrary.org/obo/DOID_9351	HP:0000819
diphtheria	A primary bacterial infectious disease that is characterized by sore throat, low fever, and an adherent membrane (a pseudomembrane) on the tonsils, pharynx, and/or nasal cavity. A milder form of diphtheria can be restricted to the skin. It is caused by Corynebacterium diphtheriae, an aerobic Gram-positive bacterium. Diphtheria toxin spreads through the bloodstream and can lead to potentially life-threatening complications that affect other organs of the body, such as the heart and kidneys.	http://purl.obolibrary.org/obo/DOID_11405	
disease	A disease is a disposition (i) to undergo pathological processes that (ii) exists in an organism because of one or more disorders in that organism.	http://purl.obolibrary.org/obo/DOID_4	
disease by infectious agent	A disease that is the consequence of the presence of pathogenic microbial agents, including pathogenic viruses, pathogenic bacteria, fungi, protozoa, multicellular parasites, and aberrant proteins known as prions.	http://purl.obolibrary.org/obo/DOID_0050117	
disease of metabolism	A disease that involving errors in metabolic processes of building or degradation of molecules.	http://purl.obolibrary.org/obo/DOID_0014667	

diverticulitis	An intestinal disease characterized by the formation and inflammation of diverticula within the bowel wall. (UMLS CUI:C0012813)	http://purl.obolibrary.org/obo/DOID_7475	
Dyspnea with Mild Physical Activity	Dyspnea experienced during minimal exertion.	https://ncit.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&ns=ncit&code=C191546	
Dyspnea with Moderate Physical Activity	Dyspnea experienced during moderate exertion.	https://ncit.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&ns=ncit&code=C191547	
Ebola hemorrhagic fever	A viral infectious disease that is a hemorrhagic fever, has_material_basis_in Zaire ebolavirus, has_material_basis_in Sudan ebolavirus, has_material_basis_in Cote d'Ivoire ebolavirus, or has_material_basis_in Bundibugyo ebolavirus, which are transmitted_by contact with the body fluids of an infected animal or person, transmitted by contaminated fomites, or transmitted by infected medical equipment. The infection has_symptom fever, has_symptom headache, has_symptom joint pain, has_symptom muscle aches, has_symptom sore throat, has_symptom weakness, has_symptom diarrhea, has_symptom vomiting, has_symptom stomach pain, has_symptom rash, has_symptom red eyes, has_symptom hiccups, and has_symptom internal and external bleeding.	http://purl.obolibrary.org/obo/DOID_4325	

EBV Infection	An infection that is caused by Epstein-Barr virus.	http://purl.obolibrary.org/obo/NCIT_C38759	
EBV-Related Post-Transplant Lymphoproliferative Disorder	A lymphoproliferative disorder that develops following organ transplantation and is associated with Epstein-Barr virus infection.	http://purl.obolibrary.org/obo/NCIT_C27696	
eczema herpeticum	A herpes simplex that results_in infection located_in skin, effected by preexisting dermatosis, has_material_basis_in Human herpesvirus 1 or Human herpesvirus 2. The infection has_symptom watery blisters, has_symptom fever, and has_symptom swelling of the lymph nodes.	http://purl.obolibrary.org/obo/DOID_9123	
eczema vaccinatum	ICD10CM:T88.1 (can ref: https://academic.oup.com/cid/article-abstract/54/6/832/290140)	https://uts.nlm.nih.gov/uts/umls/concept/C0936249	
egg allergy	A food allergy that is an allergy or hypersensitivity to dietary substances from the yolk or whites of eggs, causing an overreaction of the immune system which may lead to severe physical symptoms.	http://purl.obolibrary.org/obo/DOID_4377	
encephalitis	A brain disease that is characterized as an acute inflammation of the brain with flu-like symptoms.	http://purl.obolibrary.org/obo/DOID_9588	HP:0002383
end stage renal disease	A chronic kidney disease is characterized by non-functioning kidneys, as the final stage in chronic kidney disease.	http://purl.obolibrary.org/obo/DOID_783	
endocarditis	A endocardium disease characterized by inflammation of the endocardium of the heart chambers and valves.	http://purl.obolibrary.org/obo/DOID_10314	HP:0100584
eosinophilic esophagitis	An esophagitis characterized by inflammation involving eosinophils located_in esophagus.	http://purl.obolibrary.org/obo/DOID_13922	

epidermolysis bullosa	A vesiculobullous skin disease that is characterized by formation of blisters with only minor skin trauma, which can cause widespread wounds, dehydration, electrolyte abnormalities, and severe infection, frequently develops_from mutations in connective tissue elements, including genes encoding keratin, collagen, and laminin.	http://purl.obolibrary.org/obo/DOID_2730	
epilepsy	A brain disease that is characterized by the occurrance of at least two unprovoked seizures resulting from a persistent epileptogenic abnormality of the brain that is able to spontaneously generate paroxysmal activity and typically manifested by sudden brief episodes of altered or diminished consciousness, involuntary movements, or convulsions.	http://purl.obolibrary.org/obo/DOID_1826	HP:0001250
Escherichia Coli Infection	Infection with the organism Escherichia Coli.	http://purl.obolibrary.org/obo/NCIT_C34594	HP:0002740
esophageal atresia	esophageal atresia	http://purl.obolibrary.org/obo/DOID_10485	HP:0002032
esophageal atresia/tracheoesophageal fistula	A gastrointestinal system disease that is characterized by abnormal development of the esophagus and trachea where the upper esophagus does not connect (atresia) to the lower esophagus and stomach and may also include tracheoesophageal fistula where the esophagus and the trachea are abnormally connected which allows fluids from the esophagus to get into the airways and interfere with breathing.	http://purl.obolibrary.org/obo/DOID_0080171	
Failure to Thrive	A clinical finding indicating less than normal growth in an infant or child, or a state of global decline in an adult. (UMLS CUI:C0015544)	http://purl.obolibrary.org/obo/NCIT_C107587	

Family Medical History	A record of a patient's background regarding health and disease events of blood relatives. A patient's family medical history may be important in diagnosing existing conditions.	http://purl.obolibrary.org/obo/NCIT_C17726	
fibromyalgia	fibromyalgia	http://purl.obolibrary.org/obo/DOID_631	
focal segmental glomerulosclerosis	Focal segmental glomerulosclerosis (FSGS) is a disease in which scar tissue develops on the parts of the kidneys that filter waste from the blood (glomeruli). FSGS can be caused by a variety of conditions.	http://purl.obolibrary.org/obo/DOID_1312	HP:0000097
food allergy	A hypersensitivity reaction type I disease that is an abnormal response to a food, triggered by the body's immune system.	http://purl.obolibrary.org/obo/DOID_3044	
gastroesophageal reflux disease	gastroesophageal reflux disease	http://purl.obolibrary.org/obo/DOID_8534	HP:0002020
glioblastoma	A malignant astrocytoma characterized by the presence of small areas of necrotizing tissue that is surrounded by anaplastic cells as well as the presence of hyperplastic blood vessels, and that has_material_basis_in abnormally proliferating cells derives_from multiple cell types including astrocytes and oligondroctyes.	http://purl.obolibrary.org/obo/DOID_3068	HP:0012174
Goodpasture syndrome	An autoimmune disease that is characterized by antibody attack of the basement membrane in lungs and kidneys, leading to bleeding from the lungs and kidney failure.	http://purl.obolibrary.org/obo/DOID_9808	

granulomatosis with polyangiitis	An autoimmune disease that is characterized by necrotizing granulomatous inflammation of the upper and lower respiratory tract, glomerulonephritis, vasculitis, and the presence of antineutrophil cytoplasmatic autoantibodies (ANCAs) in patient sera, and is located_in lung, located_in kidney, located_in skin resulting from an autoimmune attack by antineutrophil cytoplasmic antibodies against small and medium-size blood vessels.	http://purl.obolibrary.org/obo/DOID_12132	
Graves' disease	An autoimmune disease of endocrine system that involves production of excessive amount of thyroid hormones, located_in thyroid gland.	http://purl.obolibrary.org/obo/DOID_12361	HP:0100647
Guillain-Barre syndrome	An autoimmune disease of peripheral nervous system that causes body's immune system to attack part of the peripheral nervous system.	http://purl.obolibrary.org/obo/DOID_12842	
haemophilus meningitis	A bacterial meningitis that has_material_basis_in Haemophilus influenzae infection.	http://purl.obolibrary.org/obo/DOID_0080179	
healthy	Having no significant health-related issues.	http://purl.obolibrary.org/obo/NCIT_C115935	
Heart Failure	Inability of the heart to pump blood at an adequate rate to meet tissue metabolic requirements. Clinical symptoms of heart failure include: unusual dyspnea on light exertion, recurrent dyspnea occurring in the supine position, fluid retention or rales, jugular venous distension, pulmonary edema on physical exam, or pulmonary edema on chest x-ray presumed to be cardiac dysfunction. (UMLS CUI:C0018801)	http://purl.obolibrary.org/obo/NCIT_C50577	

Heart Transplantation	A surgical procedure in which a damaged heart is removed and replaced by another heart from a suitable donor.	http://purl.obolibrary.org/obo/NCIT_C15246	
Helicobacter Pylori Infection	A bacterial infection of the stomach, caused by Helicobacter pylori. It is associated with the development of peptic ulcer and mucosa-associated lymphoid tissue lymphoma.	http://purl.obolibrary.org/obo/NCIT_C39293	HP:0005202
hematologic cancer	An organ system cancer located in the hematological system that is characterized by uncontrolled cellular proliferation in blood, bone marrow and lymph nodes.	http://purl.obolibrary.org/obo/DOID_2531	HP:0004377
Hematopoietic Cell Transplant Recipient	An individual receiving a hematopoietic cell transplant	https://evsexplore.semantics.cancer.gov/evsexplore/concept/ncim/CL507993	
hematopoietic system disease	A disease of anatomical entity that has_material_basis_in hematopoietic cells.	http://purl.obolibrary.org/obo/DOID_74	HP:0001871
hemiplegia	A central nervous system disease that is characterized by the complete paralysis of half of the body.	http://purl.obolibrary.org/obo/DOID_10969	HP:0002301
hemoglobinopathy	hemoglobinopathy	http://purl.obolibrary.org/obo/DOID_2860	
hemolytic-uremic syndrome	A kidney disease that is characterized by hemolytic anemia, thrombocytopenia, and renal failure caused by platelet thrombi in the microcirculation of the kidney and other organs.	http://purl.obolibrary.org/obo/DOID_12554	HP:0005575
hepatitis	(UMLS CUI:C0267797)	http://purl.obolibrary.org/obo/DOID_2237	

hepatitis A	A viral infectious disease that results_in inflammation located_in liver, has_material_basis_in Hepatitis A virus, which is transmitted_by ingestion of contaminated food or water, or transmitted_by direct contact with an infected person. The infection has_symptom fever, has_symptom fatigue, has_symptom loss of appetite, has_symptom nausea, has_symptom vomiting, has_symptom abdominal pain, has_symptom clay-colored bowel movements, has_symptom joint pain, and has_symptom jaundice.	http://purl.obolibrary.org/obo/DOID_12549	
hepatitis B	A viral infectious disease that results_in inflammation located_in liver, has_material_basis_in Hepatitis B virus, which is transmitted_by sexual contact, transmitted_by blood transfusions, and transmitted_by fomites like needles or syringes. The infection has_symptom fever, has_symptom fatigue, has_symptom loss of appetite, has_symptom nausea, has_symptom vomiting, has_symptom abdominal pain, has_symptom clay-colored bowel movements, has_symptom joint pain, and has_symptom jaundice.	http://purl.obolibrary.org/obo/DOID_2043	
hepatitis C	A viral infectious disease that results_in inflammation located_in liver, has_material_basis_in Hepatitis C virus, which is transmitted_by blood from an infected person enters the body of an uninfected person. The infection has_symptom fever, has_symptom fatigue, has_symptom loss of appetite, has_symptom nausea, has_symptom vomiting, has_symptom abdominal pain, has_symptom clay-colored bowel movements, has_symptom joint pain, and has_symptom jaundice.	http://purl.obolibrary.org/obo/DOID_1883	

herpes zoster	A viral infectious disease that results_in infection located_in nerve fiber, has_material_basis_in Human herpesvirus 3, which reactivates after appearing as chickenpox in childhood. The virus is transmitted_by direct contact with the rash, which can develop into chickenpox in newly-infected individuals. The infection has_symptom rash which is followed by blisters, has_symptom headache, has_symptom fever, has_symptom malaise, has_symptom itching, has_symptom burning pain, and has_symptom paresthesia.	http://purl.obolibrary.org/obo/DOID_8536	
human cytomegalovirus infection	A viral infectious disease that has_material_basis_in Human betaherpesvirus 5.	http://purl.obolibrary.org/obo/DOID_0080827	
human immunodeficiency virus infectious disease	A viral infectious disease that results in destruction of immune system, leading to life-threatening opportunistic infections and cancers, has_material_basis_in Human immunodeficiency virus 1 or has_material_basis_in Human immunodeficiency virus 2, which are transmitted by sexual contact, transmitted by transfer of blood, semen, vaginal fluid, pre-ejaculate, or breast milk, transmitted by congenital method, and transmitted by contaminated needles. The virus infects helper T cells (CD4+ T cells) which are directly or indirectly destroyed, macrophages, and dendritic cells. The infection has symptom diarrhea, has symptom fatigue, has symptom fever, has symptom vaginal yeast infection, has symptom headache, has symptom mouth sores, has symptom muscle aches, has symptom sore throat, and has symptom swollen lymph glands.	http://purl.obolibrary.org/obo/DOID_526	

hydronephrosis	hydronephrosis	http://purl.obolibrary.org/obo/DOID_11111	HP:0000126
hypertension	An artery disease characterized by chronic elevated blood pressure in the arteries.	http://purl.obolibrary.org/obo/DOID_10763	HP:0000822
Hypertension not adequately controlled	No definition yet. Semantic Types:Disease or Syndrome	https://uts.nlm.nih.gov/uts/umls/concept/C0857354	
hypoglycemia	A glucose metabolism disease that is characterized by abnormally low levels of blood glucose.	http://purl.obolibrary.org/obo/DOID_9993	HP:0001943
Hyponatremia	Lower than normal levels of sodium in the circulating blood. (UMLS CUI:C0020625)	http://purl.obolibrary.org/obo/NCIT_C37976	
hypothyroidism	A thyroid gland disease which involves an underproduction of thyroid hormone.	http://purl.obolibrary.org/obo/DOID_1459	HP:0000821
hysterectomy history	A gynecologic surgery history in which a woman has had a hysterectomy.	http://purl.obolibrary.org/obo/OBI_0002398	
ichthyosis	A skin disease characterized by drying and scaling of skin with the accumulation of thick scales and cracks that may be painful or bleed.	http://purl.obolibrary.org/obo/DOID_1697	HP:0008064
idiopathic pulmonary fibrosis	A pulmonary fibrosis that is characterized by scarring of the lung.	http://purl.obolibrary.org/obo/DOID_0050156	

Immunocompromised	A loss of any arm of immune functions, resulting in potential or actual increase in infections. This state may be reached secondary to specific genetic lesions, syndromes with unidentified or polygenic causes, acquired deficits from other disease states, or as result of therapy for other diseases or conditions. (UMLS CUI:C2186379)	http://purl.obolibrary.org/obo/NCIT_C14139	
Immunologic Tolerance	An innate tolerance that prevents the body from attacking native proteins and tissue.	http://purl.obolibrary.org/obo/NCIT_C17712	
Immunosuppressive Disorder	Immunosuppressive Disorder A disorder in which immune function is suppressed.	http://purl.obolibrary.org/obo/NCIT_C178942	
inflammatory bowel disease	An intestinal disease characterized by inflammation located in all parts of digestive tract.	http://purl.obolibrary.org/obo/DOID_0050589	
Inflammatory Disorder	An infectious or non infectious disorder characterized by signs and symptoms derived from focal or extensive tissue infiltration by acute (e.g., polymorphonuclear) or chronic (e.g., lymphocytic-plasmacytic) inflammatory cells. Representative examples of infectious disorders include viral infections, bacterial infections, and parasitic infections. Representative examples of non-infectious inflammatory disorders include inflammatory bowel disease and inflammatory polyps	http://purl.obolibrary.org/obo/NCIT_C93210	

influenza	A viral infectious disease that results in infection, located in respiratory tract, has_material_basis_in Influenzavirus A, has_material_basis_in Influenzavirus B, or has_material_basis_in Influenzavirus C, which are transmitted_by droplet spread of oronasal secretions during coughing, sneezing, or talking from an infected person. It is a highly contagious disease that affects birds and mammals and has_symptom chills, has_symptom fever, has_symptom sore throat, has_symptom runny nose, has_symptom muscle pains, has_symptom severe headache, has_symptom cough, and has_symptom weakness.	http://purl.obolibrary.org/obo/DOID_8469	
interstitial lung disease	A lung disease that is characterized by inflammation and altered lung interstitium compromising pulmonary function and often has_symptom shortness of breath, dyspnea, and/or cough.	http://purl.obolibrary.org/obo/DOID_3082	HP:0006530
interstitial nephritis	Interstitial nephritis is a kidney disorder. The kidneys filter waste and extra fluid from the body. When you have interstitial nephritis, the spaces between tubules (small tubes) inside the kidney become inflamed. This reduces the kidneys' ability to filter properly.	http://purl.obolibrary.org/obo/DOID_1063	HP:0001970
intestinal infectious disease	An intestinal disease that involves intestinal infection that has_material_basis_in viruses, bacteria, fungi and parasites.	http://purl.obolibrary.org/obo/DOID_100	
Irritable bowel syndrome with diarrhea	Irritable bowel syndrome with diarrhea (UMLS CUI:C0348898)	http://purl.bioontology.org/ontology/SNOMEDCT/197125005	

juvenile rheumatoid arthritis	A rheumatoid arthritis that involves an autoimmune disease onset in children under 16 which attacks the healthy cells and tissue of located_in joint.	http://purl.obolibrary.org/obo/DOID_676	
keratoconjunctivitis sicca	Dryness of the eye related to deficiency of the tear film components (aqueous, mucin, or lipid), lid surface abnormalities, or epithelial abnormalities. Keratoconjunctivitis sicca often results in a scratchy or sandy sensation (foreign body sensation) in the eyes, and may also be associated with itching, inability to produce tears, photosensitivity, redness, pain, and difficulty in moving the eyelids.	http://purl.obolibrary.org/obo/DOID_12895	HP:0001097
kidney cortex necrosis	A kidney cortex disease that is characterized by death of the tissue in the outer part of the kidney that results from blockage of the small arteries that supply blood to the cortex and that causes acute kidney injury.	http://purl.obolibrary.org/obo/DOID_2973	
kidney disease	A urinary system disease that is located in the kidney.	http://purl.obolibrary.org/obo/DOID_557	
kidney failure	A kidney disease characterized by the failure of the kidneys to adequately filter waste products from the blood.	http://purl.obolibrary.org/obo/DOID_1074	HP:0000083
Kidney Transplantation	The transfer of a healthy kidney from a donor to a patient for the purpose of replacing one of the failing kidneys of the patient.	http://purl.obolibrary.org/obo/NCIT_C15265	
Lambert-Eaton myasthenic syndrome	A neuromuscular junction disease that is characterized by an abnormality of acetylcholine (ACh) release at the neuromuscular junction which results from an autoimmune attack against voltage-gated calcium channels (VGCC) on the presynaptic motor nerve terminal.	http://purl.obolibrary.org/obo/DOID_0050214	

laryngomalacia	A laryngeal disease that is characterized by inward collapse of flaccid supraglottic structures during inspiration. The most common symptom is noisy breathing (stridor) that is often worse when the infant is on his/her back or crying.	http://purl.obolibrary.org/obo/DOID_0080833	
leukemia	A cancer that affects the blood or bone marrow characterized by an abnormal proliferation of blood cells.	http://purl.obolibrary.org/obo/DOID_1240	HP:0001909
lichen planus	A lichen disease that is located_in skin, located_in tongue or located_in oral mucosa, which presents itself in the form of papules, lesions or rashes.	http://purl.obolibrary.org/obo/DOID_9201	
Listeria meningitis	A bacterial meningitis that has_material_basis_in Listeria monocytogenes infection.	http://purl.obolibrary.org/obo/DOID_11572	
liver cancer	A hepatobiliary system cancer that is located_in the liver.	http://purl.obolibrary.org/obo/DOID_3571	HP:0002896
liver disease	liver disease	http://purl.obolibrary.org/obo/DOID_409	HP:0001392
Liver Transplantation	The transfer of a healthy liver allograft from a donor to a patient.	http://purl.obolibrary.org/obo/NCIT_C15271	
localized scleroderma	localized scleroderma	http://purl.obolibrary.org/obo/DOID_8472	HP:0100324
lung adenocarcinoma	A lung non-small cell carcinoma that derives_from epithelial cells of glandular origin.	http://purl.obolibrary.org/obo/DOID_3910	HP:0030078
lung cancer	A respiratory system cancer that is located_in the lung.	http://purl.obolibrary.org/obo/DOID_1324	

lung disease	A lower respiratory tract disease in which the function of the lungs is adversely affected by narrowing or blockage of the airways resulting in poor air flow, a loss of elasticity in the lungs that produces a decrease in the total volume of air that the lungs are able to hold, and clotting, scarring, or inflammation of the blood vessels that affect the ability of the lungs to take up oxygen and to release carbon dioxide.	http://purl.obolibrary.org/obo/DOID_850	HP:0002088
Lung Transplantation	The surgical transfer of one or both lungs from one individual to another.	http://purl.obolibrary.org/obo/NCIT_C15274	
lupus erythematosus	An autoimmune disease that is characterized by a constellation of findings that include elevated antibodies to nuclear antigens, antiphospholipids, low complement levels, ulcers, non-scarring alopecia, renal or neurologic damage, and low white blood cell and platelet counts, has_symptom rashes, fatigue, arthritis, hair loss, seizures, and symptoms related to affected organs. (UMLS CUI:C0409974)	http://purl.obolibrary.org/obo/DOID_8857	
lupus nephritis	A glomerulonephritis that is characterized by inflammation of the kidneys resulting from systemic lupus erythematosus.	http://purl.obolibrary.org/obo/DOID_0080162	
Lyme disease	A primary bacterial infectious disease that results_in infection, has_material_basis_in Borrelia burgdorferi, which is transmitted_by blacklegged tick (Ixodes scapularis) or transmitted_by western blacklegged tick (Ixodes pacificus). The infection has_symptom fever, has_symptom headache, has_symptom fatigue, and has_symptom skin rash called erythema migrans. If left untreated, infection can spread to joints, the heart, and the nervous system.	http://purl.obolibrary.org/obo/DOID_11729	

lymphocytic choriomeningitis	A viral infectious disease that results in infection located in brain, or located in meninges, or located in brain and meninges, has_material_basis_in Lymphocytic choriomeningitis virus, which is transmitted by common house mouse, Mus musculus. The infection has symptom fever, has symptom lack of appetite, has symptom headache, has symptom muscle aches, has symptom malaise, has symptom nausea, and has symptom vomiting.	http://purl.obolibrary.org/obo/DOID_12155	
lymphoma	A hematologic cancer that affects lymphocytes that reside in the lymphatic system and in blood-forming organs.	http://purl.obolibrary.org/obo/DOID_0060058	HP:0002665
malaria	A parasitic protozoa infectious disease characterized as a vector-borne infectious disease caused by the presence of protozoan parasites of the genus Plasmodium in the red blood cells, transmitted from an infected to an uninfected individual by the bite of anopheline mosquitoes, and characterized by periodic attacks of chills and fever that coincide with mass destruction of blood cells and the release of toxic substances by the parasite at the end of each reproductive cycle.	http://purl.obolibrary.org/obo/DOID_12365	
Malignant Gastric Neoplasm	A primary or metastatic malignant neoplasm involving the stomach. (UMLS CUI:C0024623)	http://purl.obolibrary.org/obo/NCIT_C9331	
Malignant Lung Neoplasm	A primary or metastatic malignant neoplasm involving the lung. (UMLS CUI:C0242379)	http://purl.obolibrary.org/obo/NCIT_C7377	

measles	A viral infectious disease that results_in infection located_in skin, has_material_basis_in Measles virus, which is transmitted_by contact with oronasal secretions, or semen of an infected person. The infection has_symptom fever, has_symptom cough, has_symptom coryza, has_symptom conjunctivitis, and has_symptom maculopapular, erythematous rash.	http://purl.obolibrary.org/obo/DOID_8622	
meningitis	A central nervous system disease that is characterized by an inflammation of the pia-arachnoid meninges. It can be caused by growth of bacteria, fungi, or parasites within the subarachnoid space or by the growth of bacteria or viruses within the meningeal or ependymal cells.	http://purl.obolibrary.org/obo/DOID_9471	HP:0001287
meningococcal meningitis	A bacterial meningitis that has_material_basis_in Neisseria meningitidis infection.	http://purl.obolibrary.org/obo/DOID_0080176	
meningoencephalitis	A central nervous system disease that involves encephalitis which occurs along with meningitis.	http://purl.obolibrary.org/obo/DOID_10554	
mental depression	mental depression	http://purl.obolibrary.org/obo/DOID_1596	
MERS-CoV	Middle East respiratory syndrome coronavirus	http://purl.bioontology.org/ontology/SNOMEDCT/697932005	

Metabolic Syndrome	A combination of medical conditions that when present, increase the risk of heart attack, stroke, and diabetes mellitus. It includes the following medical conditions: increased blood pressure, central obesity, dyslipidemia, impaired glucose tolerance, and insulin resistance.	http://purl.obolibrary.org/obo/NCIT_C84442	
milk allergy	A food allergy that results in adverse immune reaction to one or more of the proteins in cow's milk and/or the milk of other animals, which are normally harmless to the non-allergic individual.	http://purl.obolibrary.org/obo/DOID_4376	
miscarriage	Miscarriage is a reproductive system symptom characterized by the spontaneous expulsion of a human fetus before it is viable and especially between the 12th and 28th weeks of gestation.	http://purl.obolibrary.org/obo/SYMP_0000198	
mitral valve insufficiency	(UMLS CUI:C0026266)	http://purl.obolibrary.org/obo/DOID_11502	
mixed connective tissue disease	A collagen disease that is considered an overlap of three diseases, systemic lupus erythematosus, scleroderma, and polymyositis with very high titers of circulating antinuclear antibody to a ribonucleoprotein antigen.	http://purl.obolibrary.org/obo/DOID_3492	
molluscum contagiosum	A viral infectious disease that results_in infection located_in skin, has_material_basis_in Molluscum contagiosum virus, which is transmitted_by contact with the skin, and transmitted_by fomites. The infection has_symptom lesions which are flesh-colored with a pit in the center.	http://purl.obolibrary.org/obo/DOID_8867	
multiple myeloma	A myeloid neoplasm that is located_in the plasma cells in bone marrow. (UMLS CUI:C0026764)	http://purl.obolibrary.org/obo/DOID_9538	

Multiple Pulmonary Nodules	Multiple, small, round or oval, benign or malignant growths in the lung(s), which can be due to infectious, inflammatory, or neoplastic processes. (UMLS CUI:C0748164)	http://purl.obolibrary.org/obo/NCIT_C122408	
multiple sclerosis	A demyelinating disease that involves damage to the fatty myelin sheaths around the axons of the brain and spinal cord resulting in demyelination and scarring.	http://purl.obolibrary.org/obo/DOID_2377	
mumps	A viral infectious disease that results in inflammation located in salivary gland, has_material_basis_in Mumps rubulavirus, which is transmitted by droplet spread of saliva or mucus from the mouth, nose, or throat of an infected person, or transmitted by contaminated fomites. The infection has symptom fever, has symptom headache, has symptom muscle aches, has symptom tiredness, has symptom loss of appetite, has symptom swollen and tender salivary glands under the ears or jaw on one or both sides of the face.	http://purl.obolibrary.org/obo/DOID_10264	
muscle invasive bladder cancer	Muscle Invasive Bladder Carcinoma. A carcinoma that arises from the bladder mucosa and invades the muscle of the bladder wall.(NCI)	https://uts.nlm.nih.gov/uts/umls/concept/C4725841	
muscular dystrophy	A myopathy is characterized by progressive skeletal muscle weakness degeneration.	http://purl.obolibrary.org/obo/DOID_9884	HP:0003560
musculoskeletal system disease	A disease of anatomical entity that occurs in the muscular and/or skeletal system.	http://purl.obolibrary.org/obo/DOID_17	

myasthenia gravis	An autoimmune disease of the nervous system that has_material_basis_in antibodies to acetylcholine receptors at the neuromuscular junction, has_symptom ptosis, has_symptom diplopia, has_symptom dysphagia, has_symptom dysarthria, has_symptom muscle weakness and has_symptom shortness of breath.	http://purl.obolibrary.org/obo/DOID_437	
myocardial infarction	A coronary artery disease characterized by myocardial cell death (myocardial necrosis) due to prolonged ischaemia.	http://purl.obolibrary.org/obo/DOID_5844	HP:0001658
myocarditis	An extrinsic cardiomyopathy that is characterized as an inflammation of the heart muscle.	http://purl.obolibrary.org/obo/DOID_820	HP:0012819
narcolepsy	A sleep disorder that involves an excessive urge to sleep at inappropriate times, such as while at work.	http://purl.obolibrary.org/obo/DOID_8986	HP:0030050
neonatal candidiasis	A candidiasis that involves fungal infection in neonates caused by Candida species. Low birthweight and age, prolonged intravascular catheterization and the use of antibiotic drugs are the principle predisposing conditions for systemic candidiasis in neonates.	http://purl.obolibrary.org/obo/DOID_9577	
Neonatal Hypoxic Ischemic Encephalopathy	Injury to the central nervous system in the newborn period that occurs when there is insufficient delivery of oxygen to all or part of the brain.	http://purl.obolibrary.org/obo/NCIT_C119751	
neoplastic, metastatic	A disposition inhering in a tumour by virtue of the bearer's disposition to spread and invade distant tissues.	http://purl.obolibrary.org/obo/PATO_0002098	
nephrolithiasis	A kidney disease characterized by the formation of stoney concentrations in the kidneys.	http://purl.obolibrary.org/obo/DOID_585	

Nephrostomy tube (physical object)	Nephrostomy tube (physical object) (UMLS CUI:C0184149)	http://purl.bioontology.org/ontology/SNOMEDCT/286628000	
nephrotic syndrome	A nephrosis characterized by marked increase in glomerular protein permeability resulting in marked elevation of urine protein levels, hypoalbuminemia, hyperlipidemia, and hypercoagulability.	http://purl.obolibrary.org/obo/DOID_1184	HP:0000100
nervous system disease	A disease of anatomical entity that is located_in the central nervous system or located_in the peripheral nervous system.	http://purl.obolibrary.org/obo/DOID_863	
neurofibromatosis 1	A neurofibromatosis classically characterized by cafe-au-lait spots, Lisch nodules in the eye, and fibromatous tumors of the skin or in some cases by a high load of spinal tumors that has_material_basis_in heterozygous mutation in NF1 on 17q11.2.	http://purl.obolibrary.org/obo/DOID_0111253	
Neurological diseases or conditions	No definition yet. Semantic Types:Disease or Syndrome	https://uts.nlm.nih.gov/uts/umls/concept/C2359473	
neuromuscular disease	A neuropathy that affect the nerves that control the voluntary muscles. (UMLS CUI:C0027868)	http://purl.obolibrary.org/obo/DOID_440	
neuromyelitis optica	A central nervous system disease characterized by inflammation of the optic nerve (optic neuritis) and inflammation of the spinal cord (myelitis).	http://purl.obolibrary.org/obo/DOID_8869	

Newcastle disease	A viral infectious disease that results_in infection in birds and humans, has_material_basis_in Newcastle disease virus, which is transmitted_by contact with feces and urine of an infected bird, or transmitted_by fomites. The infection has_symptom conjunctivitis, has_symptom headache, and has_symptom lacrimation in humans, and has_symptom gasping, has_symptom coughing, has_symptom twisting of head and neck, has_symptom circling, has_symptom complete paralysis, has_symptom watery diarrhea, and has_symptom reduced egg production in birds.	http://purl.obolibrary.org/obo/DOID_2929	
non-severe COVID-19	A COVID-19 that is characterized by the absence of any criteria for severe or critical COVID-19. https://www.who.int/publications/i/item/WHO-2019-nCoV-clinical-2021-1	http://purl.obolibrary.org/obo/DOID_0081014	
Not Applicable	Determination of a value is not relevant in the current context	http://purl.obolibrary.org/obo/NCIT_C48660	
Not Specified	Not stated explicitly or in detail	http://purl.obolibrary.org/obo/NCIT_C38046	
nutritional deficiency disease	A nutrition disease that is characterized by deficiency of a nutritional element, such as a vitamin, mineral, carbohydrate, protein, fat, or general energy content.	http://purl.obolibrary.org/obo/DOID_5113	

obesity	An overnutrition that is characterized by excess body fat, traditionally defined as an elevated ratio of weight to height (specifically 30 kilograms per meter squared), has_material_basis_in a multifactorial etiology related to excess nutrition intake, decreased caloric utilization, and genetic susceptibility, and possibly medications and certain disorders of metabolism, endocrine function, and mental illness.	http://purl.obolibrary.org/obo/DOID_9970	HP:0001513
optic nerve glioma	optic nerve glioma	http://purl.obolibrary.org/obo/DOID_4992	HP:0009734
optic neuritis	An optic nerve disease that results_in inflammation located_in optic nerve which may cause a complete or partial loss of vision.	http://purl.obolibrary.org/obo/DOID_1210	HP:0100653
osteoarthritis	An arthritis that has_material_basis_in worn out cartilage located_in joint.	http://purl.obolibrary.org/obo/DOID_8398	HP:0002758
Pancreas Transplantation	The surgical transfer of a pancreas from one individual to another.	http://purl.obolibrary.org/obo/NCIT_C15293	
pancreatic cancer	An endocrine gland cancer located_in the pancreas. (UMLS CUI:C0235974)	http://purl.obolibrary.org/obo/DOID_1793	
Pancreatic Islet Transplantation	The surgical transfer of pancreatic islet cells from one individual to another.	http://purl.obolibrary.org/obo/NCIT_C15352	
panniculitis	A skin disease that is characterized by inflammation of subcutaneous adipose tissue.	http://purl.obolibrary.org/obo/DOID_1526	HP:0012490
paraplegia	paraplegia	http://purl.obolibrary.org/obo/DOID_607	HP:0010550

Parkinson's disease	A synucleinopathy that has_material_basis_in degeneration of the central nervous system that often impairs motor skills, speech, and other functions.	http://purl.obolibrary.org/obo/DOID_14330	
Partial Small Intestine Resection	Surgical removal of part of the small intestine. (UMLS CUI:C0192616)	http://purl.obolibrary.org/obo/NCIT_C51512	
peanut allergy	A legume allergy that is an allergy or hypersensitivity to dietary substances from peanuts causing an overreaction of the immune system which in a small percentage of people may lead to severe physical symptoms.	http://purl.obolibrary.org/obo/DOID_4378	
Pediatric acute-onset neuropsychiatric syndrome	PANS pediatric acute-onset neuropsychiatric syndrome	http://purl.bioontology.org/ontology/MESH/C000631768	C000631768
pemphigus vulgaris	A pemphigus characterized by autosomal dominant blisters and erosions on the skin and mucous membranes erosions cause by autoantibodies to intercellular cement substance.	http://purl.obolibrary.org/obo/DOID_0060851	
peptic ulcer disease	peptic ulcer disease	http://purl.obolibrary.org/obo/DOID_750	HP:0004398
Perennial Allergic Rhinitis	Allergic rhinitis caused by indoor allergens and lasting year round.	http://purl.obolibrary.org/obo/NCIT_C92189	HP:0003193
perinatal necrotizing enterocolitis	perinatal necrotizing enterocolitis	http://purl.obolibrary.org/obo/DOID_8677	
peripheral vascular disease	A vascular disease that is characterized by obstruction of larger arteries not within the coronary, aortic arch vasculature, or brain.	http://purl.obolibrary.org/obo/DOID_341	

Peritoneal Dialysis	A form of dialysis that uses the peritoneum as a membrane across which the infused diasylate exchanges nutrients for waste products that are removed when the fluid is exchanged. (UMLS CUI:C0031139)	http://purl.obolibrary.org/obo/NCIT_C15297	
pernicious anemia	A nutritional deficiency disease that is characterized by a decrease in red blood cells due to malabsorption of vitamin B12, has_symptom fatigue, pallor, shortness of breath, glossitis, ataxia, and/or paresthesia, has_material_basis_in atrophic gastritis, autoimmune disorder affecting the production or function of intrinsic factor, and/or genetic factors.	http://purl.obolibrary.org/obo/DOID_13381	
pertussis	A commensal bacterial infectious disease that results_in inflammation located_in respiratory tract, has_material_basis_in Bordetella pertussis, or has_material_basis_in Bordetella parapertussis, which produce toxins that paralyze the cilia of the respiratory epithelial cells. The infection is characterized by a prolonged, high-pitched, deeply indrawn breath (whoop).	http://purl.obolibrary.org/obo/DOID_1116	
pervasive developmental disorder	A developmental disorder of mental health that refers to a group of five disorders characterized by impairments in socialization and communication, as well as restricted interests and repetitive behaviors.	http://purl.obolibrary.org/obo/DOID_0060040	

pharyngitis	An upper respiratory tract disease involving inflammation of the throat or pharynx resulting from bacterial, viral, fungal infections or irritants like pollutants or chemical substances and smoking. The infection is often referred to as sore throat. The symptoms include pain during swallowing, enlarged tonsils coated with a white discharge, runny nose, cough and slight fever.	http://purl.obolibrary.org/obo/DOID_2275	
physical disorder	A disease that has_material_basis_in a genetic abnormality, error with embryonic development, infection or compromised intrauterine environment.	http://purl.obolibrary.org/obo/DOID_0080015	
pituitary gland disease	An endocrine system disease that is located_in the pituitary gland.	http://purl.obolibrary.org/obo/DOID_53	
placenta disease	A uterine disease that is located_in the placenta.	http://purl.obolibrary.org/obo/DOID_780	
plague	A primary bacterial infectious disease that results_in infection, located_in lymph node, located_in vasculature or located_in lungs, has_material_basis_in Yersinia pestis, which is transmitted_by oriental rat flea (Xenopsylla cheopis) infected by feeding on rodents and other mammals, transmitted_by air, transmitted_by direct contact or transmitted_by ingestion of contaminated undercooked food.	http://purl.obolibrary.org/obo/DOID_3482	
Plasmodium falciparum malaria	A malaria described as a severe form of the disease caused by a parasite Plasmodium falciparum, which is marked by irrregular recurrence of paroxysms and prolonged or continuous fever.	http://purl.obolibrary.org/obo/DOID_14067	

Plasmodium vivax malaria	A malaria that is caused by the protozoan parasite Plasmodium vivax, which induces paroxysms at 48-hour intervals.	http://purl.obolibrary.org/obo/DOID_12978	
Pleural effusions, chronic	No definition yet. Semantic Types:Disease or Syndrome	https://uts.nlm.nih.gov/uts/umls/concept/C0747636	
pneumonia	A lung disease that involves lung parenchyma or alveolar inflammation and abnormal alveolar filling with fluid (consolidation and exudation).	http://purl.obolibrary.org/obo/DOID_552	
polymyalgia rheumatica	A collagen disease that is characterized by pain, stiffness, and tenderness of the proximal muscle groups including the shoulder, pelvic girdle and the neck.	http://purl.obolibrary.org/obo/DOID_853	
polymyositis	A myositis that is characterized by muscle weakness affecting both sides of your body.	http://purl.obolibrary.org/obo/DOID_0080745	
portal vein thrombosis	A hepatic vascular disease that is characterized by a blood clot that forms within the hepatic portal vein. (UMLS CUI:C0155773)	http://purl.obolibrary.org/obo/DOID_11695	
Post-Acute Sequelae of COVID-19	A constellation of signs and symptoms that can persist for weeks or months after acute infection with SARS-CoV-2, or appear weeks after infection. This condition may be characterized by fatigue, shortness of breath, difficulty focusing or concentrating ("brain fog"), sleep disorders, fevers, gastrointestinal symptoms, anxiety, and depression. aka Long-COVID-19. ACC/AHA Definition: Symptoms that significantly impair quality of life, which started during or after probable or confirmed acute COVID-19 and have persisted 4 wk to 3 mo after the initial diagnosis of COVID-19	http://purl.obolibrary.org/obo/NCIT_C179263	

Post-Transplant Lymphoproliferative Disorder	Post-transplant lymphoproliferative disorder (PTLD) is a polyclonal (benign) or clonal (malignant) proliferation of lymphoid cells that develops as a consequence of immunosuppression in a recipient of a solid organ or bone marrow allograft. PTLDs comprise a spectrum ranging from early, Epstein-Barr virus (EBV)-driven polyclonal lymphoid proliferations to EBV-positive or EBV-negative lymphomas of predominantly B-cell or less often T-cell type.	http://purl.obolibrary.org/obo/NCIT_C4727	
post-traumatic stress disorder	An anxiety disorder which results from a traumatic experience that results in psychological trauma.	http://purl.obolibrary.org/obo/DOID_2055	
postinfectious encephalitis	An encephalitis that is characterized by the immune system mistakenly attacking healthy cells in the brain instead of attacking only the cells causing the infection, often occuring two to three weeks after the initial infection.	http://purl.obolibrary.org/obo/DOID_10993	
pre-eclampsia	A hypertension occurring during pregnancy characterized by large amounts of protein in the urine (proteinuria) and edema, usually by the last trimester of pregnancy.	http://purl.obolibrary.org/obo/DOID_10591	HP:0100602
Pregnancy	The state or condition of having a developing embryo or fetus in the body (uterus), after union of an ovum and spermatozoon, during the period from conception to birth.	http://purl.obolibrary.org/obo/NCIT_C25742	
Prenatal maternal abnormality	Prenatal maternal abnormality	http://purl.obolibrary.org/obo/HP_0002686	HP:0002686
Preterm Birth	Birth when a fetus is less than 37 weeks and 0 days gestational age.	http://purl.obolibrary.org/obo/NCIT_C92861	

Previous	Occurring prior to something else.	http://purl.obolibrary.org/obo/NCIT_C25627	
primary biliary cholangitis	A liver cirrhosis characterized by chronic and slow progressive destruction of intrahepatic bile ducts.	http://purl.obolibrary.org/obo/DOID_12236	HP:0002613
primary immunodeficiency disease	An immune system disease that results when one or more essential parts of the immune system is missing or not working properly at birth due to a genetic mutation.	http://purl.obolibrary.org/obo/DOID_612	HP:0002721
primary sclerosing cholangitis	A sclerosing cholangitis characterized by fibroobliterative inflammation of the biliary tract, leading to cirrhosis and portal hypertension.	http://purl.obolibrary.org/obo/DOID_0060643	
Primary Sjogren Syndrome	Sjogren syndrome without a concomitant systemic autoimmune disorder.	http://purl.obolibrary.org/obo/NCIT_C116985	
proctitis	A rectal disease that involves inflammation of the rectal mucosa, which results from infection, inflammatory bowel disease, or radiation. Sexually transmitted pathogens (Neisseria gonorrhoeae, Chlamydia trachomatis, herpes simplex virus 1 and 2, Treponema pallidum) and enteric pathogens (Campylobacter, Shigella, Salmonella) are involved in the disease. Symptoms are rectal discomfort and bleeding.	http://purl.obolibrary.org/obo/DOID_3127	
psoriasis	A skin disease that is characterized by patches of thick red skin and silvery scales.	http://purl.obolibrary.org/obo/DOID_8893	HP:0003765
psoriatic arthritis	An arthritis that is characterized by joint inflammation that usually occurs in combination with psoriasis.	http://purl.obolibrary.org/obo/DOID_9008	

Psychiatric Disorder	A disorder characterized by behavioral and/or psychological abnormalities, often accompanied by physical symptoms. The symptoms may cause clinically significant distress or impairment in social and occupational areas of functioning. Representative examples include anxiety disorders, cognitive disorders, mood disorders and schizophrenia. (UMLS CUI:C1658764)	http://purl.obolibrary.org/obo/NCIT_C2893	
psychotic disorder	A cognitive disorder that involves abnormal thinking and perceptions resulting in a disconnection with reality.	http://purl.obolibrary.org/obo/DOID_2468	
pulmonary hypertension	A hypertension characterized by an increase of blood pressure in the pulmonary artery, pulmonary vein or pulmonary capillaries.	http://purl.obolibrary.org/obo/DOID_6432	HP:0002092
pustulosis of palm and sole	pustulosis of palm and sole	http://purl.obolibrary.org/obo/DOID_4398	HP:0100847
Radiation Exposure	Exposure to radioactive materials or ionizing radiation, whether by external irradiation, contact or contamination with radioactive material, or incorporation of radioactive materials, as in the case of certain diagnostic procedures.	http://purl.obolibrary.org/obo/NCIT_C61398	

Radiation Sickness Syndrome	The complex of symptoms characterizing the disease known as radiation injury, resulting from excessive exposure (greater than 200 rads or 2 gray) of the whole body (or large part) to ionizing radiation. The earliest of these symptoms are nausea, fatigue, vomiting, and diarrhea, which may be followed by epilation, hemorrhage, inflammation of the mouth and throat, and general loss of energy. In severe cases, where the radiation exposure has been approximately 1000 Rad (10 gray) or more, death may occur within two to four weeks. Those who survive six weeks after the receipt of a single large dose of radiation to the whole body may generally be expected to recover. (U.S. Nuclear Regulatory Commission).	http://purl.obolibrary.org/obo/NCIT_C50723	
Raynaud disease	Raynaud disease	http://purl.obolibrary.org/obo/DOID_10300	HP:0030880
recent	A quality of a process which occurs near to or not long before the present.	http://purl.obolibrary.org/obo/PATO_0001484	
Recurrent pregnancy loss	A medical condition characterized by the loss of two or more pregnancies before the fetus reaches viability. The exact timing for what constitutes "viability" may vary, but losses are often counted before 20 weeks of gestation. Recurrent pregnancy loss is a subset of miscarriage, which is more broadly defined as the loss of a pregnancy before viability. Updated term: Abortion, Habitual.	https://uts.nlm.nih.gov/uts/umls/concept/C0000809	
Recurrent urinary tract infections	Repeated infections of the urinary tract. (UMLS CUI:C0262655)	http://purl.obolibrary.org/obo/HP_0000010	HP:0000010

relapse	A disease stage which is preceded by a remission and characterized by the return of a manifestation of a disease.	http://purl.obolibrary.org/obo/OGMS_0000105	
relapsing polychondritis	A chondromalacia that is characterized by recurrent inflammation of cartilage and other tissues throughout the body.	http://purl.obolibrary.org/obo/DOID_2556	
renal artery obstruction	renal artery obstruction	http://purl.obolibrary.org/obo/DOID_2972	HP:0001920
Reproductive Surgery	A surgical procedure in the field of reproductive medicine.	http://purl.obolibrary.org/obo/NCIT_C157970	
respiratory syncytial virus infectious disease	A viral infectious disease that results_in infection located_in upper respiratory tract or located_in lower respiratory tract, has_material_basis_in Human respiratory syncytial virus, which is transmitted_by droplet spread of nasal secretions from an infected person while coughing or sneezing, or transmitted_by contaminated fomites. The infection has_symptom runny nose, has_symptom fever, has_symptom cough, has_symptom wheezing, and has_symptom respiratory distress.	http://purl.obolibrary.org/obo/DOID_1273	
Rheumatic Disease	A musculoskeletal system disease that involves inflammation or pain in the muscles, joints, or fibrous tissue.	http://purl.obolibrary.org/obo/DOID_1575	
rheumatic heart disease	A heart valve disease that is characterized by repeated inflammation with fibrinous repair caused by an autoimmune reaction to Group A beta-hemolytic streptococci (GAS) that results in valvular damage. The cardinal anatomic changes of the valve include leaflet thickening, commissural fusion, and shortening and thickening of the tendinous cords.	http://purl.obolibrary.org/obo/DOID_0050827	

rheumatoid arthritis	An arthritis that is an autoimmune disease which attacks healthy cells and tissue located_in joint.	http://purl.obolibrary.org/obo/DOID_7148	HP:0001370
rhinitis	A upper respiratory infectious disease which involves irritation and inflammation of the mucous membrane of the nose due to viruses, bacteria or irritants. The inflammation results in generation of excessive amounts of mucus leading to runny nose, as well as nasal congestion and post-nasal drip.	http://purl.obolibrary.org/obo/DOID_4483	HP:0012384
Rhinovirus Infection	An infectious process caused by rhinovirus. The virus usually causes upper respiratory infections, but can infect the lower tract as well.	http://purl.obolibrary.org/obo/NCIT_C122572	
rubella	A viral infectious disease that results_in infection located_in skin, has_material_basis_in Rubella virus, which is transmitted_by droplet spread of oronasal secretions from the infected person through coughing and sneezing, and transmitted_by congenital method. The infection has_symptom rash on the face which spreads to the trunk and limbs, has_symptom fever, has_symptom lymphadenopathy, has_symptom joint pains, has_symptom headache, and has_symptom conjunctivitis.	http://purl.obolibrary.org/obo/DOID_8781	
salmonellosis	A primary bacterial infectious disease caused by the bacteria of the genus Salmonella. It has sypmtoms diarrhea, fever, vomiting, and abdominal cramps 12 to 72 hours after infection. In most cases, the illness lasts four to seven days, and most people recover without treatment.	http://purl.obolibrary.org/obo/DOID_0060859	

sarcoidosis	A hypersensitivity reaction type IV disease characterized by the growth of collections of inflammatory cells (granulomas) in multiple organs.	http://purl.obolibrary.org/obo/DOID_11335	
sarcoma	A cell type cancer that has_material_basis_in abnormally proliferating cells derives from embryonic mesoderm.	http://purl.obolibrary.org/obo/DOID_1115	
schistosomiasis	A parasitic helminthiasis infectious disease that involves infection of the intestine, urinary tract, skin, liver and spleen caused by multiple species of the trematode fluke of the genus Schistosoma. The symptoms include fever, chills, nausea, abdominal pain, diarrhea, malaise, myalgia, liver and spleen enlargement, rash and hematuria.	http://purl.obolibrary.org/obo/DOID_1395	
scleroderma	A rheumatic disease that involves the abnormal growth of connective tissue, which supports the skin and internal organs.	http://purl.obolibrary.org/obo/DOID_419	HP:0100324
Seasonal Allergic Rhinitis	Allergic rhinitis caused by outdoor allergens.	http://purl.obolibrary.org/obo/NCIT_C92188	HP:0003193
Severe Acute Respiratory Syndrome (SARS)	A Coronavirus infectious disease that results_in infection located_in respiratory tract, has_material_basis_in SARS coronavirus (SARS-CoV), which is transmitted_by droplet spread of respiratory secretions, transmitted_by ingestion of contaminated food, or transmitted_by fomites. The infection has_symptom fever, has_symptom headache, has_symptom body aches, has_symptom dry cough, and has_symptom hypoxia	http://purl.obolibrary.org/obo/DOID_2945	

severe COVID-19	A COVID-19 that is characterized by any of (1) Oxygen saturation < 90% on room air, (2) Respiratory rate > 30 breaths/min in adults and children > 5 years old, ≥ 60 breaths/min in children < 2 months old, ≥ 50 in children 2–11 months old, and ≥ 40 in children 1–5 years old, or (3) signs of severe respiratory distress (accessory muscle use, inability to complete full sentences, and, in children, very severe chest wall indrawing, grunting, central cyanosis, or presence of any other general danger signs. https://www.who.int/publications/i/item/WHO-2019-nCoV-clinical-2021-1	http://purl.obolibrary.org/obo/DOID_0081013	
Sexually Transmitted Disorder	A disorder acquired through sexual contact.	http://purl.obolibrary.org/obo/NCIT_C3365	
Shigellosis	An intestinal disease cause by Shigella bacteria.	http://purl.obolibrary.org/obo/NCIT_C157978	
Shoulder Dislocation	A dislocation of the shoulder joint. (UMLS CUI:C0037005)	http://purl.obolibrary.org/obo/NCIT_C35020	
sickle cell anemia	A blood protein disease that is characterized by low number of red blood cells, repeated infections, and periodic episodes of pain, resulting from atypical hemoglobin molecules called hemoglobin S, which can distort red blood cells into a sickle, or crescent, shape. https://en.wikipedia.org/wiki/Sickle_cell_disease, https://ghr.nlm.nih.gov/condition/sickle-cell-disease, https://www.nhlbi.nih.gov/health-topics/sickle-cell-disease	https://www.disease-ontology.org/?id=DOID:10923	

sinusitis	A paranasal sinus disease involving inflammation of the paranasal sinuses resulting from bacterial, fungal, viral infection, allergic or autoimmune issues. Symptoms can include fever, weakness, fatigue, cough and congestion. There may also be mucus drainage in the back of the throat, called postnasal drip.	http://purl.obolibrary.org/obo/DOID_0050127	HP:0000255
Sjogren's syndrome	An autoimmune disease that involves attack of immune cells which destroy the exocrine glands that produce tears and saliva.	http://purl.obolibrary.org/obo/DOID_12894	
Small Bowel Transplantation	Replacing diseased bowel with healthy bowel tissue.	http://purl.obolibrary.org/obo/NCIT_C157985	
Small for Gestational Age	Smaller than normal size according to sex and gestational age related norms, defined as a weight below the 10th percentile for the gestational age (UMLS CUI: C0235991).	http://purl.obolibrary.org/obo/NCIT_C114934	HP:0001518
smallpox	A viral infectious disease that results in infection located in skin, has_material_basis_in Variola virus, which is transmitted by droplets from oral, nasal or pharyngeal mucosa, transmitted by contact with the body fluids, or transmitted by fomites. The infection results in formation of lesions, first on the face, hands and forearms and later on the trunk.	http://purl.obolibrary.org/obo/DOID_8736	

Solid Neoplasm	A benign or malignant neoplasm arising from tissues that do not include fluid areas. Representative examples include epithelial neoplasms (e.g. lung carcinoma, prostate carcinoma, breast carcinoma, colon carcinoma), and neoplasms arising from the soft tissues and bones (e.g. leiomyosarcoma, liposarcoma, chondrosarcoma, osteosarcoma). Neoplasms originating from the blood or bone marrow (leukemias and myeloproliferative disorders) are not considered solid tumors.	http://purl.obolibrary.org/obo/NCIT_C9292	
Solid Organ Transplant Recipient	An individual who is receiving a transplant of a solid organ.	http://purl.obolibrary.org/obo/NCIT_C130200	
specific developmental disorder	A developmental disorder of mental health that categorizes specific learning disabilities and developmental disorders affecting coordination.	http://purl.obolibrary.org/obo/DOID_0060038	
spinal muscular atrophy	A motor neuron disease that is a degenerative neuromuscular disease characterized by lower motor neuron degeneration associated with progressive muscle weakness and atrophy.	http://purl.obolibrary.org/obo/DOID_12377	HP:0007269
spontaneous abortion	Spontaneous abortion is a abortion characterized by the naturally occurring expulsion of a nonviable fetus.	http://purl.obolibrary.org/obo/SYMP_0000199	
Spontaneous Preterm Birth	Preterm birth from 20 weeks to 36 weeks, 6 days of gestation associated with one of the following: classic preterm labor or preterm premature rupture of membranes.	http://purl.obolibrary.org/obo/NCIT_C112864	
Staphylococcus Aureus Infection	An infectious process in which the bacteria Staphylococcus aureus is present.	http://purl.obolibrary.org/obo/NCIT_C122576	HP:0020072

Stevens-Johnson syndrome	A skin disease that is characterized by ulceration of less than 10 percent of the surface area of the body. The disease is often precipitated by the use of medications, such as antibiotics or antiepileptics, or onset of infection.	http://purl.obolibrary.org/obo/DOID_0050426	
stillbirth	Stillbirth is a reproductive system symptom characterized by the birth of a dead fetus, occurs when a fetus which has died in the uterus or during labor or delivery exits a woman's body.	http://purl.obolibrary.org/obo/SYMP_0000849	
Streptococcal Pharyngitis	Inflammation of the throat due to Streptococcus pyogenes.	http://purl.obolibrary.org/obo/NCIT_C116003	HP:0020096
Streptococcus pneumonia	A bacterial pneumonia has_material_basis_in Streptococcus pneumoniae.	http://purl.obolibrary.org/obo/DOID_0040084	
substance abuse	A substance-related disorder that involves a maladaptive pattern of substance use leading to significant impairment in functioning.	http://purl.obolibrary.org/obo/DOID_302	
substance-related disorder	A disease of mental health involving the abuse or dependence on a substance that is ingested in order to produce a high, alter one's senses, or otherwise affect functioning. (UMLS CUI:C0038586)	http://purl.obolibrary.org/obo/DOID_303	
Sweet syndrome	A skin disease that is characterized by sudden onset of well defined tender plaques or nodules accompanied by fever, arthralgias, ocular inflammation, headaches and, rarely, oral or genital lesions.	http://purl.obolibrary.org/obo/DOID_0080746	

swine influenza	An influenza that results_in infection located_in respiratory tract of pigs and humans, has_material_basis_in Influenza C virus, or has_material_basis_in Influenza A virus subtypes (H1N1, H1N2, H3N1, H3N2, and H2N3), which are transmitted_by direct contact with infected pigs. The infection in humans has_symptom fever, has_symptom lethargy, has_symptom lack of appetite, has_symptom coughing, has_symptom runny nose, has_symptom sore throat, has_symptom nausea, has_symptom vomiting, and has_symptom diarrhea.	http://purl.obolibrary.org/obo/DOID_0050211	
systemic lupus erythematosus	A lupus erythematosus that is an inflammation of connective tissue marked by skin rashes, joint pain and swelling, inflammation of the kidneys and inflammation of the tissue surrounding the heart.	http://purl.obolibrary.org/obo/DOID_9074	HP:0002725
systemic scleroderma	A scleroderma that is characterized by fibrosis (or hardening) of the skin and major organs, as well as vascular alterations, and autoantibodies.	http://purl.obolibrary.org/obo/DOID_418	HP:0100324
tetanus	A primary bacterial infectious disease that results in prolonged contraction of skeletal muscle fibers, has_material_basis_in Clostridium tetani, which produces tetanospasmin, a neurotoxin, which is carried to the brain and spinal cord, where it binds irreversibly to receptors inhibiting neurotransmission. Damaged upper motor neurons cannot control reflex responses to afferent sensory stimuli.	http://purl.obolibrary.org/obo/DOID_11338	

tonsillitis	An upper respiratory tract disease which is characterized by inflammation of the tonsils resulting from bacterial (Group A streptococcus) and viral (Epstein-Barr virus, adenovirus) infections. Symptoms include a severe sore throat, painful or difficult swallowing, coughing, headache, myalgia, fever and chills.	http://purl.obolibrary.org/obo/DOID_10456	HP:0011110
TORCH syndrome	A syndrome that is characterized by congenital infection with toxoplasmosis, rubella, cytomegalovirus, herpes simplex, and other organisms.	http://purl.obolibrary.org/obo/DOID_0080835	
transverse myelitis	A myelitis that is characterized by a band-like sensation across the trunk of the body, with sensory changes below.	http://purl.obolibrary.org/obo/DOID_0080743	
tuberculosis	A primary bacterial infectious disease that is located_in lungs, located_in lymph nodes, located_in pericardium, located_in brain, located_in pleura or located_in gastrointestinal tract, has_material_basis_in Mycobacterium tuberculosis, which is transmitted_by droplets released into the air when an infected person coughs or sneezes.	http://purl.obolibrary.org/obo/DOID_399	
tularemia	A primary bacterial infectious disease that has_material_basis_in Francisella tularensis, which is transmitted by dog tick bite (Dermacentor variabilis), transmitted by deer flies (Chrysops sp) or transmitted by contact with infected animal tissues.	http://purl.obolibrary.org/obo/DOID_2123	
type 1 diabetes mellitus	A diabetes mellitus that is characterized by destruction of pancreatic beta cells resulting in absent or extremely low insulin production.	http://purl.obolibrary.org/obo/DOID_9744	HP:0100651

type 2 diabetes mellitus	A diabetes mellitus that is characterized by high blood sugar, insulin resistance, and relative lack of insulin.	http://purl.obolibrary.org/obo/DOID_9352	HP:0005978
typhoid fever	A primary bacterial infectious disease that is a communicable systemic illness, has_material_basis_in Salmonella enterica subsp enterica serovar Typhi, which is transmitted_by ingestion of food or water contaminated with the feces of an infected person. The infection has_symptom fever, has_symptom diarrhea, has_symptom prostration, has_symptom headache, has_symptom splenomegaly, has_symptom liver enlargement, has_symptom eruption of rose-colored spots, and has_symptom leukopenia.	http://purl.obolibrary.org/obo/DOID_13258	
ulcerative colitis	A colitis that is predominantly confined to the mucosa located_in colon and includes characteristic ulcers, or open sores.	http://purl.obolibrary.org/obo/DOID_8577	HP:0100279
upper respiratory tract disease	A respiratory system disease which involves the upper respiratory tract.	http://purl.obolibrary.org/obo/DOID_974	
urinary tract obstruction	Urinary tract obstruction is a blockage that inhibits the flow of urine through its normal path (the urinary tract), including the kidneys, ureters, bladder, and urethra. Blockage can be complete or partial. Blockage can lead to kidney damage, kidney stones, and infection.	http://purl.obolibrary.org/obo/DOID_5200	
uveitis	An uveal disease is characterized by inflammation of any of the layers of the uvea of the eye, which includes the iris, ciliary body, and choroid.	http://purl.obolibrary.org/obo/DOID_13141	HP:0000554

vasculitis	A vascular disease that is characterized by inflammation of the blood vessels.	http://purl.obolibrary.org/obo/DOID_865	HP:0002633
Viral Respiratory Tract Infection	A respiratory tract infection caused by a virus. Viruses represent the most common causes of upper and lower respiratory tract infections and include rhinoviruses, influenza viruses, parainfluenza viruses, and respiratory syncytial virus.	http://purl.obolibrary.org/obo/NCIT_C27219	
viral tropism	The specificity of a virus for infecting a particular type of cell or tissue.	http://id.nlm.nih.gov/mesh/D056189	
vitiligo	An autoimmune disease that causes depigmentation of patches of skin resulting from loss of function or death of melanoctyes.	http://purl.obolibrary.org/obo/DOID_12306	HP:0001045
Water-Electrolyte Imbalance	Water-Electrolyte Imbalance	http://purl.obolibrary.org/obo/OMIT_0015710	
weight loss	weight loss	http://purl.obolibrary.org/obo/SYMP_0000178	
West Nile encephalitis	A viral infectious disease that results in inflammation located in brain, has_material_basis_in West Nile virus, which is transmitted_by Culex, transmitted by Aedes, and transmitted_by Anopheles species of mosquitoes. The infection has_symptom high fever, has_symptom headache, has_symptom neck stiffness, has_symptom stupor, has_symptom disorientation, has_symptom coma, has_symptom tremors, has_symptom convulsions, has_symptom muscle weakness, has_symptom vision loss, has_symptom numbness, and has_symptom paralysis.	http://purl.obolibrary.org/obo/DOID_2365	

West Nile fever	A viral infectious disease that results_in infection, has_material_basis_in West Nile virus, which is transmitted_by Culex and transmitted_by Aedes mosquitoes. The infection has_symptom fever, has_symptom sore throat, has_symptom headache, has_symptom body ache, has_symptom nausea, has_symptom maculopapular rash and has_symptom vomiting.	http://purl.obolibrary.org/obo/DOID_2366	
X-linked agammaglobulinemia	An immunodeficiency state characterized (usually) by profoundly low concentrations of serum immunoglobulins of all classes, although occasionally significant amounts of one or more isotypes can be found. The fundamental defect in XLA affects early lineage B cells	http://purl.obolibrary.org/obo/NCIT_C3822	
yellow fever	A viral infectious disease that results in infection, has_material_basis_in Yellow fever virus, which is transmitted by Aedes, transmitted by Haemagogus, or transmitted by Sabethes species of mosquitoes. The infection has symptom fever, has symptom muscle pain, has symptom backache, has symptom headache, has symptom shivers, has symptom loss of appetite, has symptom jaundice, and has symptom bleeding from the mouth, nose, eyes or stomach leading to vomitus containing blood.	http://purl.obolibrary.org/obo/DOID_9682	
Zika fever	A viral infectious disease that has_material_basis in Zika virus, which is transmitted_by Aedes aegypti mosquitoes and targets neural progenitor cells and neuronal cells in all stages of maturity and has_symptom fever, has_symptom rash, has_symptom headaches and has_symptom joint pain.	http://purl.obolibrary.org/obo/DOID_0060478	

19. **lk_disease_stage**

Name	Description	Link
disease_stage_preferred		
Acute/Recent onset	A short-term infection or disease characterized by a dramatic onset and rapid recovery. Primary infections fall under this category.	https://dst.liai.org/BcellDisc.html
Chronic	A long-term infection or illness and partial remission.	https://dst.liai.org/BcellDisc.html
COVID-19 Disease Severity 0	Patient is uninfected. There are no clinical or virological evidence of infection.	https://ncithesaurus.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&version=21.10d&ns=ncit&code=C179010
COVID-19 Disease Severity 1	Patient is ambulatory without limitation of activities.	https://ncithesaurus.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&version=21.10d&ns=ncit&code=C179011
COVID-19 Disease Severity 2	Patient is ambulatory but there is limitation of activities.	https://ncithesaurus.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&version=21.10d&ns=ncit&code=C179012
COVID-19 Disease Severity 3	Patient is hospitalized with mild disease but does not require oxygen therapy.	https://ncithesaurus.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&version=21.10d&ns=ncit&code=C179013

COVID-19 Disease Severity 4	Patient is hospitalized with mild disease but requires oxygen by mask or nasal prongs.	https://ncithesaurus.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&version=21.10d&ns=ncit&code=C179014
COVID-19 Disease Severity 5	Patient is hospitalized with severe disease and requires non-invasive ventilation or high-flow oxygen.	https://ncithesaurus.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&version=21.10d&ns=ncit&code=C179015
COVID-19 Disease Severity 6	Patient is hospitalized with severe disease and requires intubation and mechanical ventilation.	https://ncithesaurus.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&version=21.10d&ns=ncit&code=C179016
COVID-19 Disease Severity 7	Patient is hospitalized with severe disease and requires ventilation plus additional organ support via vasopressor therapy, renal replacement therapy, or extracorporeal membrane oxygenation.	https://ncithesaurus.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&version=21.10d&ns=ncit&code=C179017
COVID-19 Disease Severity 8	Patient is dead.	https://ncithesaurus.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&version=21.10d&ns=ncit&code=C179018

Critical COVID-19	Defined by the criteria for acute respiratory distress syndrome (ARDS), sepsis, septic shock, or other conditions that would normally require the provision of life-sustaining therapies such as mechanical ventilation (invasive or non-invasive) or vasopressor therapy.	https://www.who.int/publications/i/item/WHO-2019-nCoV-clinical-2021-1
Non-severe COVID-19	Defined as absence of any criteria for severe or critical COVID-19.	https://www.who.int/publications/i/item/WHO-2019-nCoV-clinical-2021-1
Other	Any disease stage that cannot be classified under the selections above will be classified under "other." Household contacts will be recorded as "other".	https://dst.liai.org/BcellDisc.html
Post	Recovery from an illness, including latent (potentially existing but not presently evident or realized) and remission (a period during which symptoms of disease disappear [complete remission]). Note that partial remission will be recorded as "chronic".	https://dst.liai.org/BcellDisc.html
SeroNet Covid-19 Disease Severity Death	Corresponds to WHO Severity Scale 8. Dead.	https://ncithesaurus.nci.nih.gov/ncitbrowser/
SeroNet Covid-19 Disease Severity Mild	Corresponds to WHO severity scale: (1) Ambulatory, asymptomatic or no limitation of activities or (2) ambulatory, limitation of activities.	https://ncithesaurus.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&version=21.10d&ns=ncit&code=C179011; https://ncithesaurus.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&version=21.10d&ns=ncit&code=C179012

SeroNet Covid-19 Disease Severity Moderate	Corresponds to WHO severity scale: (3) Hospitalized, no oxygen therapy or (4) hospitalized, oxygen by mask or nasal prongs.	https://ncithesaurus.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&version=21.10d&ns=ncit&code=C179013; https://ncithesaurus.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&version=21.10d&ns=ncit&code=C179014
SeroNet Covid-19 Disease Severity Severe	Corresponds to WHO severity scale: (5) Hospitalized with severe disease and non-invasive ventilation or high-flow oxygen, or (6) hospitalized with severe disease with intubation and mechanical ventilation, or (7) hospitalized with severe disease ventilation + additional organ support - pressors, RRT, ECMO	https://ncithesaurus.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&version=21.10d&ns=ncit&code=C179015; https://ncithesaurus.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&version=21.10d&ns=ncit&code=C179016; https://ncithesaurus.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&version=21.10d&ns=ncit&code=C179017

SeroNet Covid-19 Disease Severity Unknown	Covid-19 disease severity is not known.	https://ncithesaurus.nci.nih.gov/ncitbrowser/
Severe COVID-19	Defined by any of: Oxygen saturation < 90% on room air. Respiratory rate > 30 breaths/min in adults and children > 5 years old; >= 60 breaths/min in children < 2 months old; >= 50 in children 2–11 months old; and >= 40 in children 1–5 years old. Signs of severe respiratory distress (accessory muscle use, inability to complete full sentences, and, in children, very severe chest wall indrawing, grunting, central cyanosis, or presence of any other general danger signs).	https://www.who.int/publications/i/item/WHO-2019-nCoV-clinical-2021-1
Unknown	Used when the disease stage is not clearly specified or known.	https://dst.liai.org/BcellDisc.html

20. **lk_ethnicity**

Name	Description	Link
Hispanic or Latino	A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race. The term, "Spanish origin," can be used in addition to "Hispanic or Latino."	https://www.fda.gov/regulatory-information/search-fda-guidance-documents/collection-race-and-ethnicity-data-clinical-trials
Not Hispanic or Latino	A person not of Hispanic or Latino origin.	https://www.fda.gov/regulatory-information/search-fda-guidance-documents/collection-race-and-ethnicity-data-clinical-trials

Not Specified	Ethnicity is not specified or not received. If no Ethnicity value is received, then this is the system default value.	https://www.fda.gov/regulatory-information/search-fda-guidance-documents/collection-race-and-ethnicity-data-clinical-trials
Other	A person having an Ethnicity that is some Other value not in CV Terms.	https://www.fda.gov/regulatory-information/search-fda-guidance-documents/collection-race-and-ethnicity-data-clinical-trials

21. **lk_exp_measurement_tech**

Name	Description	Link
10x feature barcode (CRISPR screening)	The use of 10x Genomics feature barcode technology with the purpose of performing a CRISPR screening.	http://www.ebi.ac.uk/efo/EFO_0030013
16S rRNA gene sequencing	An assay that determines taxonomic and community diversity information by sequencing specific genomic regions used as marker of identity or diversity.	http://purl.obolibrary.org/obo/OBI_0001960
1D Gel	One dimensional gels are used to separate an analyte using one physical feature of the analyte.	http://purl.obolibrary.org/obo/OBI_0001121
2D Gel	Two dimensional gels are used to separate an analyte using two physical features of the analyte.	http://purl.obolibrary.org/obo/OBI_0001121

Array	Arrays (including microarrays) are a set of probes immobilized on a surface. The probes can be oligonucleotides, cDNAs, antibodies and other molecules that recognize a target. Microarrays can be constructed by several methods including (but not limited to in situ oligo synthesis (e.g. Affymetrix), cDNA spotting, bead arrays (e.g. Illumina) and antibody spotting. The position and identity of probes are provided by the manufacturer. The probe identifiers and their target are referred to as annotation or translation of probe identifiers to bioinformatic identifiers. Microarrays can be used for gene expression (mRNA transcript quantification), genotyping, cytokine quantification, etc. Microarrays for gene expression fall into two general classes- single channel and dual channel. The channel refers to the wavelength scanned for fluorescent signals. Affymetrix microarrays are obligatory single channel. There are a host of commercial and non-commercial microarray meanufacturers that use two c	http://purl.obolibrary.org/obo/OBI_0400147; http://purl.obolibrary.org/obo/OBI_0001204; http://purl.obolibrary.org/obo/OBI_0001307; http://purl.obolibrary.org/obo/OBI_0400149
B cell receptor repertoire sequencing assay	A sequencing assay that determines the sequences of DNA or RNA molecules that encode the repertoire of B cell receptors within an input sample.	http://purl.obolibrary.org/obo/OBI_0002991
Bio-layer Interferometry Assay	A binding assay that detects a shift in the interference pattern reflected from a layer of immobilized material on the biosensor tip to measure binding to- or dissociating from the material on the biosensor.	BLI experiments are used to determine the kinetics and affinity of molecular interactions.
Bulk RNA-seq assay	An RNA-seq assay in which the sample that is sequenced is derived from a collection of cells, such as a tissue sample or entire cell culture, and therefore provides results representative of the aggregate of sample cells.	http://purl.obolibrary.org/obo/OBI_0003090
Cell Culture	A cell culture includes the cells in culture, as well as the media and all additives in which the cells are being grown or in which they are stored.	http://purl.obolibrary.org/obo/OBI_0001876

Cell Mediated Immunoassay	Cell Mediated Immunoassay	Cell Mediated Immunoassay
Chemiluminescent Assay	A type of immunoassay in which the antigen-antibody complex is quantified using light emission, which is generated from a chemical reaction.	https://uts.nlm.nih.gov/uts/umls/concept/C0201709
Circular Dichroism	Circular Dichroism is a form of spectroscopy used to determine the optical isomerism and secondary structure of molecules.	http://en.wikipedia.org/wiki/Circular_Dichroism
CITE-Seq	CITE-seq is a method in which oligonucleotide-labeled antibodies are used to integrate cellular protein and transcriptome measurements into an efficient, single-cell readout.	http://www.ebi.ac.uk/efo/EFO_0009294
Colorimetric Cell Viability Assay	A colorimetric assay that can assess the viability of cells by quantitation of the reduction of a yellow tetrazolium salt substrate to a product that has a purple color. This assay can measure the cytotoxicity of a chemical or drug by determining the affect of treatment on cell viability. Has exact synonym: MTT Assay, MTS Assay.	http://purl.obolibrary.org/obo/NCIT_C95027
CRISPR Screening	Genome-wide Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) is a genome editing tool also known as CRISPR-Cas9, -Cas13, CPF1, etc. It is used to study the relationship between genotype and phenotype by editing, ablating, or knocking out gene expression on a genome-wide scale and studying the resulting phenotypic alterations. CRISPR edits genes in living cells to evaluate the subsequent down-stream effects and also has therapeutic potential.	http://www.bioassayontology.org/bao#BAO_0010249
Cryo-Electron Microscopy	Electron microscopy involving an aqueous suspension of a sample which is applied in an extremely thin film to a grid, frozen in liquid nitrogen and maintained in this state by means of a special mount. The imaging of frozen-hydrated molecules and organelles permits the best possible resolution closest to the living state, free of chemical fixatives or stains	http://purl.obolibrary.org/obo/NCIT_C18113

CyTOF	Cytometry Time Of Flight CyTOF (DVS Sciences) or Mass cytometry, or , is a variation of flow cytometry in which antibodies are labeled with heavy metal ion tags rather than fluorochromes. Readout is by time-of-flight mass spectrometry.	http://purl.obolibrary.org/obo/OBI_0002115
Cytokine Assay	An analyte assay to study presence, concentration, or amount of cytokines.	http://purl.obolibrary.org/obo/OBI_0002766
Cytometric Bead Array Assay	An analyte assay in which a series of beads coated with antibodies specific for different analytes and marked with discrete fluorescent labels are used to simultaneously capture and quantitate soluble analytes.	http://purl.obolibrary.org/obo/OBI_0000920
DNA methylation profiling assay	An assay which aims to provide information about state of methylation of DNA molecules using genomic DNA collected from a material entity using a range of techniques and instrument such as DNA sequencers and often relying on treatment with bisulfites to ensure cytosine conversion.	http://purl.obolibrary.org/obo/OBI_0000634
DNA microarray	Microarray that is used as a physical 2D immobilisation matrix.	http://purl.obolibrary.org/obo/OBI_0400148
ELISA	Enzyme-Linked ImmunoSorbant Assay. Quantification of a molecule (e.g cytokine) by an antibody immobilization strategy.	http://purl.obolibrary.org/obo/OBI_0000661
ELISPOT	Enzyme-linked ImmunoSPOT. A variant of ELISA with increased resolution that allows quantifying the number of cells in a population that release a molecule (e.g. cytokine).	http://purl.obolibrary.org/obo/OBI_0600031
EMSA	Electrophoretic mobility shift assay is an assay which aims to provide information about Protein-DNA or Protein-RNA interaction and which used gel electrophoresis and relies on the fact the molecular interactions will cause the heterodimer to be retarded on the gel when compared to controls corresponding to protein extract alone and protein extract + neutral nucleic acid.	http://purl.obolibrary.org/obo/OBI_0001671

Exome Sequencing	Technique for sequencing all the protein-coding genes in a genome (known as the exome). Sequencing process which uses deoxyribonucleic acid as input and results in a the creation of DNA sequence information artifact.	http://purl.obolibrary.org/obo/OBI_0002118
Flow Cytometry	Fluorescence Activated Cell Sorting	http://purl.obolibrary.org/obo/OBI_0000916
Fluorescence Resonance Energy Transfer	A process to measure the proximity of two fluorochromes whereby the excitation energy of one fluorochrome is released and absorbed by the second fluorochrome. It is used to study interactions and structure of macromolecules.	https://ncithesaurus.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&ns=ncit&code=C202404
Fluorescent Antibody Procedure	An immunological procedure in which the antibodies are coupled with molecules which fluoresce under ultra violet (UV) light. This makes them particularly suitable for detection of specific antigens in tissues or on cells.	http://purl.obolibrary.org/obo/NCIT_C17370
GC_MS	Gas Chromatography-Mass Spectrometry. A microanalytical technique combining mass spectrometry and gas chromatography for the qualitative as well as quantitative determinations of compounds.(MSH)	UMLS Metathesaurus Browser
Genotyping Assay	An assay which generates data about a genotype from a specimen of genomic DNA. A variety of techniques and instruments can be used to produce information about sequence variation at particular genomic positions. alternative term: SNP analysis; genotype profiling	http://purl.obolibrary.org/obo/OBI_0000435
Glycan profiling	The analytical process of characterizing and studying glycans, which are complex carbohydrates or sugars attached to proteins and lipids in biological systems. Glycans play crucial roles in various biological processes, including cell signaling, immune response, and protein folding	http://purl.obolibrary.org/obo/NCIT_C93248

Hemagglutination Inhibition	Quantitate serum antibody to a specific antigen by blocking agglutination of cells.	http://purl.obolibrary.org/obo/OBI_0000875
High-Resolution Mass Spectrometry	Mass spectrometry where the "exact" mass of the molecular ions in the sample is determined as opposed to the "nominal" mass (the number of protons and neutrons). Exact Synonyms: high resolution mass spectroscopy, HR-MS, HRMS	http://purl.obolibrary.org/obo/CHMO_0000498
Histological Assay	An assay that uses visual examination of cells or tissue (or images of them) to make an assessment regarding a quality of the cells or tissue. This assay can include steps of staining, imaging, and judgement.	http://purl.obolibrary.org/obo/OBI_0600020
Histopathology	The microscopic study of characteristic tissue abnormalities by employing various cytochemical and immunocytochemical stains.	http://purl.obolibrary.org/obo/NCIT_C18190
HLA Typing	Human Leukocyte Antigen typing.	http://purl.obolibrary.org/obo/OBI_0002122
HPLC	High Performace Liquid Chromotography is used to separate components of a mixture by using a variety of chemical interactions between the substance being analyzed (analyte) and the chromatography column.	http://purl.obolibrary.org/obo/OBI_0002116
IgH Sequencing	IgH Sequencing	IgH Sequencing
Immune Repertoire Deep Sequencing	DNA sequencing of the full complement of genes associated with T and B cell antigen-specific receptors in an individual, performed with a high number of replications.	http://purl.obolibrary.org/obo/NCIT_C158249
Immunoblot	a western blot analysis is an assay which allows detection of protein present in a extract resolved on polyacrylamide gel by electrophoresis, transfered to a membrane made of nitrocellulose or polyvinylidene difluoride and immobilized using formaldehyde based cross linking.	http://purl.obolibrary.org/obo/OBI_0000854

Immunohistochemistry	Immunohistochemical staining techniques allow for the visualization of antigens via the sequential application of a specific antibody to the antigen (primary antibody), a secondary antibody to the primary antibody and an enzyme complex with a chromogenic substrate.	https://ncit.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=ncit&ns=ncit&code=C23020
Immunoprecipitation	An assay with the objective to determine presence of an analyte by mixing a solution of antigen and antibody and separating out bound antigen:antibody complexes using immunoprecipitation.	http://purl.obolibrary.org/obo/OBI_0001700
in situ Hybridization	Uses a labelled complementary DNA or RNA strand (i.e., probe) to localize a specific DNA or RNA sequence in a portion or section of tissue (in situ), or the entire tissue (whole mount ISH), in cells and in circulating tumor cells (CTCs).	http://purl.obolibrary.org/obo/NCIT_C17562
Intracellular Cytokine Stain Flow Cytometric Assay	A technique that is used with flow cytometry to measure cytokine production in isolated cells. Cells are stimulated with an antigen or mitogen, and cytokine secretion is blocked using protein transport inhibitors. The cells are then stained with fluorochrome labeled monoclonal antibodies that target surface markers, fixed and permeabilized, and stained with fluorochrome labeled anti-cytokine monoclonal antibodies prior to analysis by flow cytometry. (NCI)	http://purl.obolibrary.org/obo/NCIT_C178026
Iontrap_MS	Sequential Mass Spectrometry. A mass spectrometry technique that uses an ion trap and Fourier-transform ion-cyclotron resonance (FT-ICR) type instrument to re-fragment the product ions from a mass spec pass. The process can be repeated n times where 'n' represents the number of times the isolation-fragmentation-measurement cycle has been carried out. (NCI)	UMLS Metathesaurus Browser
KIR Typing	Killer cell immunoglobulin-like receptors.	http://purl.obolibrary.org/obo/OBI_0002121

Lateral Flow Assay	A procedure using a paper-based platform for the detection and quantification of analytes in complex mixtures, where the sample is placed on a test device for clinical use.	http://purl.obolibrary.org/obo/MAXO_0000612
LC_MS	Liquid Chromatography Mass Spectrometry. An analytical technique wherein liquid chromatography is coupled to mass spectrometry in order to separate, identify, and quantify substances in a sample. (NCI)	UMLS Metathesaurus Browser
Line Probe Assay	PCR amplification of a genomic region is performed using biotinylated primers. Following amplification, labelled PCR products are hybridized with specific oligonucleotide probes immobilized on a strip.	http://purl.obolibrary.org/obo/OBI_0000892
Liquid Chromatography	Chromatography is the collective term for a family of laboratory techniques for the separation of mixtures. It involves passing a mixture which contains the analyte through a stationary phase, which separates it from other molecules in the mixture and allows it to be isolated.	http://purl.obolibrary.org/obo/OBI_0001057
Luminex xMAP	Microsphere based multiplexing system. Microspheres are color coded and linked to a detector or capture reagent (e.g. antibody, oligonucleotides, peptides, or receptors).	http://purl.obolibrary.org/obo/OBI_0000920
Mass Spectrometry	Mass spectrometry is an analytical technique used to measure the mass-to-charge ratio of ions.	http://purl.obolibrary.org/obo/OBI_0000470
Meso Scale Discovery ECL	MSD Electrochemiluminescence (ECL) detection uses labels that emit light when electrochemically stimulated.	http://en.wikipedia.org/wiki/Electrochemiluminescence
Methylation Sequencing	An assay in which the methylation state of DNA is determined and is compared between samples using sequencing based technology.	http://www.ebi.ac.uk/efo/EFO_0002761
Microneutralization Assay	An in vitro assay that is used to determine whether antibodies that can block viral infection are present in a biological specimen. Virus is mixed with serum taken from the subject and is incubated in culture with laboratory cells, which are monitored over time for cytotoxicity.	http://purl.obolibrary.org/obo/NCIT_C120695

microRNA profiling assay	A transcription profiling assay in which aims to quantify the microRNA species within a biological sample.	http://purl.obolibrary.org/obo/OBI_0001926
Microscopy	Visualization of very small entities from cellular to sub-cellular and molecular resolution depending on technique.	http://purl.obolibrary.org/obo/OBI_0002119
Mixed Lymphocyte Reaction	Mixed lymphocyte reaction test is a measure of histocompatibility at the HLA locus. Peripheral blood lymphocytes from two individuals are mixed together in tissue culture for several days; lymphocytes from incompatible individuals will stimulate each other to proliferate significantly (e.g. measured by tritiated thymidine uptake) whereas those from compatible individuals will not; in the one\-way MLC test, the lymphocytes from one of the individuals are inactivated thereby allowing only the untreated remaining population of cells to proliferate in response to foreign histocompatibility antigens.	http://purl.obolibrary.org/obo/OBI_0002120
Molecular Cloning	Molecular cloning refers to the procedure isolating a DNA sequence of interest and obtaining multiple copies of it in an organism.	http://purl.obolibrary.org/obo/OBI_0600064
MS_MS	Tandem Mass Spectrometry. An analytical technique where mass spectrometry is coupled to mass spectrometry in order to separate, identify, and quantify substances in a sample. (NCI)	UMLS Metathesaurus Browser
Multiplex Bead Array Assay	A type of solid-phase immunoassay that uses distinctly colored microbeads coated with one or more reagents, which may be antigens, antibodies, oligonucleotides, enzyme substrates, or receptors, for the simultaneous detection and measurement of one or many analytes within a single sample.	https://ncit.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&version=22.04d&ns=ncit&code=C135455
Multiplex Immunoassay	An assay that allows for the simultaneous measurement of multiple analytes in a single sample.	https://ncit.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&version=22.04d&ns=ncit&code=C179019

Nanostring	An assay that uses barcoded hybridization probes to quantify the expression of RNA transcripts by Nanostring technology which uses molecular "barcodes" and single molecule imaging to detect and count hundreds of unique transcripts in a single reaction.	http://www.bioassayontology.org/bao#BAO_0010047
Nanostring nCounter miRNA expression assay	A microRNA profiling assay using digital molecular barcoding technology to quantify target microRNA molecules without the need for amplification	http://purl.obolibrary.org/obo/OBI_0002142
Neuraminidase Inhibition Assay	A type of enzyme-based assay that assesses neuraminidase activity in the presence of an enzyme inhibitor.	http://purl.obolibrary.org/obo/NCIT_C120696
Neutralizing Antibody Titer Assay	A quantitative assay where different dilutions of serum are mixed with virus and used to infect cells. At the lower dilutions, antibodies will block infection, but at higher dilutions, there will be too few antibodies to have an effect. The simple process of dilution provides a way to compare the virus- neutralizing abilities of different sera. The neutralization titer is expressed as the reciprocal of the highest dilution at which virus infection is blocked.	http://purl.obolibrary.org/obo/OBI_0000872
NMR	Nuclear Magnetic Resonance spectroscopy is a technique for determining the structure of organic compounds.	http://purl.obolibrary.org/obo/OBI_0000623
Northern Blot	Northern blots are a derivative of Southern blots where RNA that has been size fractionated (often by 1-D gel electrophoresis) is immobilized on a substrate (e.g. a charged nylon membrane). The blot is(are) hybridized with a labeled probe(s). The position on the blot and the intensity of the label's signal can be used to estimate RNA size and concentration, respectively.	http://purl.obolibrary.org/obo/OBI_0000860
Not Specified	Not Specified	Not Specified

Olink assay	A proximity extension assay that uses quantitative polymerase chain reaction (qPCR) technology to determine the concentration/presence of proteins using a high-multiplex, high-throughput protein biomarker platform. The assay utilizes two distinct oligonucleotide-labeled antibodies (probes) that bind at different sites for each detected protein. When the two probes are in close proximity, a new PCR target sequence is formed by a proximity-dependent DNA polymerization event. The resulting sequence is subsequently detected and quantified using standard real-time PCR.	http://purl.obolibrary.org/obo/OBI_0003112
Other	Other Experiment Measurement Technique not listed.	
PCR	Polymerase Chain Reaction is a technique to amplify a DNA template.	http://purl.obolibrary.org/obo/OBI_0000415
phage display binding assay	A binding assay in which a collection of phages expressing a library of different peptides or protein fragnments is used to infect cells, followed by screening for cells that bind a protein of interest, and identifiying the sequence of infecting phages to determine a suitable binding partner.	http://purl.obolibrary.org/obo/OBI_0001476
Plaque Reduction Neutralization Assay	A serological test that measures the ability of antibodies in specific concentrations of serum to prevent the formation of plaques in a cell monolayer when combined with a viral suspension.	https://ncit.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&version=22.04d&ns=ncit&code=C172555
Protein microarray	Microarray, usually a piece of glass, on which different molecules of protein have been affixed at separate locations in an ordered manner. These are used to identify protein-protein or protein-small molecule interactions.	http://purl.obolibrary.org/obo/OBI_0400149
Pseudovirus Neutralization Assay	An immunoassay that is used to determine whether antibodies that can block pseudovirus replication are present in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C172552

Q-PCR	Quantitative Polymerase Chain Reaction is used to measure the gene expression of transcripts by comparing the number of cycles in a sample needed to reach a certain threshold value with the known quantities of a transcript needed to reach the same threshold. It is an alternative term of Quantitative Real Time Polymerase Chain Reaction	http://purl.obolibrary.org/obo/OBI_0000893
Real time polymerase chain reaction assay	A laboratory technique based on the PCR, which is used to amplify and simultaneously quantify a specific DNA molecule based on the use of complementary probes/primers. It enables both detection and quantification (as absolute number of copies or relative amount when normalized to DNA input or additional normalizing genes) of one or more specific sequences in a DNA sample.	http://purl.obolibrary.org/obo/OBI_0000893
Respiratory Pathogen Panel	A diagnostic test for respiratory pathogens that uses PCR for differential diagnosis during upper or lower respiratory tract infection.	http://purl.obolibrary.org/obo/NCIT_C132852
RNA sequencing	Sequencing process which uses ribonucleic acid as input and results in a the creation of RNA sequence information artifact.	http://purl.obolibrary.org/obo/OBI_0001177; http://purl.obolibrary.org/obo/OBI_0001271
Rnase Protection Assay	A laboratory technique to identify individual RNA molecules in a heterogeneous RNA sample extracted from cells.	http://en.wikipedia.org/wiki/RNase_protection_assay
SARS-CoV-2 Virus Sequencing	SARS-CoV-2 Virus Sequencing	SARS-CoV-2 Virus Sequencing
scRNA-seq	single-cell RNA sequencing assay. An RNA sequencing assay that uses RNA extracts as input that can be traced to a single cell of origin.	http://purl.obolibrary.org/obo/OBI_0002631
Sequencing	Sequencing is used to discover new sequence variants and to genotype a sample for known variants.	http://purl.obolibrary.org/obo/OBI_0600047

Single-Molecule Array (SIMOA)	A type of enzyme-linked immunoassay in which single molecules can be detected through the use of femtomolar-sized reaction chambers and an excess of fluorescently labeled antibody-bound beads. (NCI)	https://uts.nlm.nih.gov/uts/umls/concept/C5205784
SNP microarray	DNA microarray used to detect polymorphisms in DNA samples.	http://purl.obolibrary.org/obo/OBI_0001204
SOMAscan assay	An analyte assay that uses aptamers to detect protein analytes in serum.	http://purl.obolibrary.org/obo/OBI_0003111
Southern Blot	A Southern blot is a method of capturing DNA molecules that have been seperated by agarose gel electrophoresis for subsequent analysis.	http://purl.obolibrary.org/obo/OBI_0000892
Spectral Flow Cytometry	Spectral flow cytometry is based on many of the fundamental aspects of conventional flow cytometry but has unique optical collection and analytical capabilities. With spectral flow cytometry, the emission spectrum of every fluorescence molecule is captured by a set of detectors across a defined wavelength range. Every molecule's fluorescent spectrum can be recognized, recorded as a spectral signature, and used as reference in multicolor applications.	https://www.thermofisher.com/us/en/home/life-science/cell-analysis/flow-cytometry/flow-cytometry-learning-center/flow-cytometry-resource-library/flow-cytometry-methods/spectral-flow-cytometry-fundamentals.html
Surface Plasmon Resonance	An assay that uses the detection of electromagnetic waves in a surface to detect material entities adsorbed to the surface, which changes the local index of refraction.	http://purl.obolibrary.org/obo/OBI_0000923
T cell receptor repertoire sequencing assay	A sequencing assay that determines the sequences of DNA or RNA molecules that encode the repertoire of T cell receptors within an input sample.	http://purl.obolibrary.org/obo/OBI_0002990

TCID50	50 percent Tissue Culture Infective Dose, (TCID50) is the measure of infectious virus titer. This endpoint dilution assay quantifies the amount of virus required to kill 50% of infected hosts or to produce a cytopathic effect in 50% of inoculated tissue culture cells.	http://en.wikipedia.org/wiki/Virus_Quantification
Transcription profiling assay	An assay which aims to provide information about gene expression and transcription activity using ribonucleic acids collected from a material entity using a range of techniques and instrument such as DNA sequencers, DNA microarrays, Northern Blot	http://purl.obolibrary.org/obo/OBI_0000424
Transcription profiling by array	An assay in which the transcriptome of a biological sample is analyzed using array technology.	http://purl.obolibrary.org/obo/OBI_0001463
Transcription Profiling by NanoString	The NanoString nCounter gene expression system uses multiplexed probe hybridization to capture and count individual mRNA transcripts. Transcripts for each gene are targeted by a pair of gene-specific probes - a biotinylated capture probe to capture the transcript on a streptavidin-coated slide, and a reporter probe containing a color-coded pattern of fluorescent segments. Imaging of the slide can then identify each captured transcript. PMID:18278033]	http://www.ebi.ac.uk/efo/EFO_0030058
Virus Neutralization	Block a viral function.	http://purl.obolibrary.org/obo/OBI_0000872
Virus Plaque Assay	An assay that is used to determine viral quantity by infecting monolayers of host cells with serially diluted virus, covering the monolayers with an immobilizing overlay after a period of incubation to restrict the spread of the virus to neighboring cells, and counting the resulting visible plaques of infected cells.	http://purl.obolibrary.org/obo/NCIT_C174336

Western Blot	Western blot is a method in molecular biology/biochemistry/immunogenetics to detect protein in a given sample of tissue homogenate or extract. It uses gel electrophoresis to separate denatured proteins by mass. The proteins are then transferred out of the gel and onto a membrane (typically nitrocellulose), where they are probed using antibodies specific to the protein. As a result, researchers can examine the amount of protein in a given sample and compare levels between several groups. Other techniques also using antibodies allow detection of proteins in tissues (immunohistochemistry) and cells (immunocytochemistry). The confirmatory HIV test employs a western blot to detect anti-HIV antibody in a human serum sample. A Western blot is also used as the definitive test for Bovine spongiform encephalopathy (BSE, commonly referred to as 'mad cow disease'). Some forms of Lyme disease testing employ Western blotting.	http://purl.obolibrary.org/obo/OBI_0000854
Whole Genome Sequencing	Laboratory process that determines the complete DNA sequence of an organism's genome at a single time. Sequencing process which uses deoxyribonucleic acid as input and results in a the creation of DNA sequence information artifact	http://purl.obolibrary.org/obo/OBI_0002117
Whole Virome Sequencing Assay	A whole metagenome sequencing assay that intends to provide information on multiple genome sequences from different viruses present in the same input sample.	http://purl.obolibrary.org/obo/OBI_0002768
X-Ray Crystallography	A technique in crystallography in which the pattern produced by the diffraction of x-rays through the closely spaced lattice of atoms in a crystal is recorded and then analyzed to reveal the nature of that lattice.	http://purl.obolibrary.org/obo/NCIT_C17672
Yeast Two Hybrid	Two-hybrid screening is a molecular biology technique used to discover protein-protein interactions by testing for physical interactions (such as binding) between two proteins.	http://purl.obolibrary.org/obo/OBI_0001679

22. **lk_exposure_material**

Name	Description	Link
exposure_material_preferred ; exposure_material_id		
2008-2009 trivalent influenza vaccine ; VO:0004809	2008-2009 trivalent influenza vaccine	http://purl.obolibrary.org/obo/VO_0004809
2011-2012 trivalent inactivated vaccine (A/California/7/09 (H1N1), A/Perth /16/2009 (H3N2), and B/Brisbane/60/2008) ; VO:0004810	2011-2012 trivalent inactivated vaccine (A/California/7/09 (H1N1), A/Perth /16/2009 (H3N2), and B/Brisbane/60/2008)	http://purl.obolibrary.org/obo/VO_0004810
ACWY Vax ; VO:0003138	ACWY Vax	http://purl.obolibrary.org/obo/VO_0003138
Ad35.CS.01 malaria vaccine ; VO:0004993	A P. falciparum malaria vaccine that is formed by tull length CS-expressing replication-deficient recombinant human adenovirus 35.	http://purl.obolibrary.org/obo/VO_0004993
AdCOVID ; VO_0005153	AdCOVID	http://purl.obolibrary.org/obo/VO_0005153
Alternaria alternata ; NCBITaxon:5599	species, ascomycetes	http://purl.obolibrary.org/obo/NCBITaxon_5599
BCG Vaccine ; VO:0000771	BCG Vaccine is a Mycobacterium tuberculosis vaccine that is a live attenuated strain of Mycobacterium bovis (Bacillus Calmette Guerin; BCG).	http://purl.obolibrary.org/obo/VO_0000771
Borreliella burgdorferi ; NCBITaxon:139	Borreliella burgdorferi	http://purl.obolibrary.org/obo/NCBITaxon_139
Chikungunya virus ; NCBITaxon:37124	Found from reported data using NCBI Taxomony Dump: 37124	http://purl.obolibrary.org/obo/NCBITaxon_37124
Chlamydia trachomatis ; NCBITaxon:813	Chlamydia trachomatis	https://ontobee.org/ontology/NCBITaxon?iri=http://purl.obolibrary.org/obo/NCBITaxon_813
CureVac AG ; VO:0005208	CureVac AG	http://purl.obolibrary.org/obo/VO_0005208

Cytomegalovirus ; NCBITaxon:10358	Cytomegalovirus	http://purl.obolibrary.org/obo/NCBITaxon_10358
Dengue virus 1 ; NCBITaxon:11053	Dengue virus 1	http://purl.obolibrary.org/obo/NCBITaxon_11053
Dengue virus 2 ; NCBITaxon:11060	Dengue virus 2	http://purl.obolibrary.org/obo/NCBITaxon_11060
Dengue virus 3 ; NCBITaxon:11069	Found from reported data using NCBI Taxomony Dump: 11069	http://purl.obolibrary.org/obo/NCBITaxon_11069
Dengue virus ; NCBITaxon:12637	Dengue virus	http://purl.obolibrary.org/obo/NCBITaxon_12637
diphtheria, tetanus and whole cell pertussis vaccine ; VO:0003106	diphtheria, tetanus and whole cell pertussis vaccine	http://purl.obolibrary.org/obo/VO_0003106
Diphtheria-Tetanus-Pertussis vaccine ; VO:0000738	Diphtheria-Tetanus-Pertussis vaccine	http://purl.obolibrary.org/obo/VO_0000738
Dryvax ; VO:0000035	a vaccinia virus vaccine that is a freeze-dried calf lymph smallpox vaccine, specifically, Dryvax is a live-virus preparation of vaccinia prepared from calf lymph.	http://purl.obolibrary.org/obo/VO_0000035
Engerix-B ; VO:0010711	Engerix-B	http://purl.obolibrary.org/obo/VO_0010711
Fluarix ; VO:0000045	Fluarix	http://purl.obolibrary.org/obo/VO_0000045
FluMist ; VO:0000044	FluMist	http://purl.obolibrary.org/obo/VO_0000044
Fluvirin ; VO:0000046	Fluvirin	http://purl.obolibrary.org/obo/VO_0000046
Fluzone ; VO:0000047	Fluzone	http://purl.obolibrary.org/obo/VO_0000047
Hepacivirus C ; NCBITaxon:11103	Found from reported data using NCBI Taxomony Dump: 11103	http://purl.obolibrary.org/obo/NCBITaxon_11103

Hepatitis B surface antigen vaccine ; VO_0003150	A Hepatitis B virus vaccine that uses recombinant Hepatitis B surface antigen as the antigen	http://purl.obolibrary.org/obo/VO_0003150
Hepatitis B Surface Antigen Vaccine Injection [Heplisav-B] ; VO_0003270	Hepatitis B Surface Antigen Vaccine Injection [Heplisav-B]	http://purl.obolibrary.org/obo/VO_0003270
Hepatitis B Surface Antigen Vaccine Prefilled Syringe [Engerix-B] ; VO_0003258	Hepatitis B Surface Antigen Vaccine Prefilled Syringe [Engerix-B]	http://purl.obolibrary.org/obo/VO_0003258
Hepatitis B virus ; NCBITaxon:10407	Hepatitis B virus	http://purl.obolibrary.org/obo/NCBITaxon_10407
Hepatitis B virus vaccine ; VO_0000644	A viral vaccine that protects against infection with Hepatitis B virus.	http://purl.obolibrary.org/obo/VO_0000644
HEPLISAV-B ; VO:0003152	A Hepatitis B surface antigen viral vaccine that utilizes a cytidine-phosphate-guanosine oligodeoxynucleotide (CpGODN) 1018, as an adjuvant.	http://purl.obolibrary.org/obo/VO_0003152
Human alphaherpesvirus 3 ; NCBITaxon:10335	Human alphaherpesvirus 3	http://purl.obolibrary.org/obo/NCBITaxon_10335
Human gammaherpesvirus 4 (Epstein-Barr virus) ; NCBITaxon:10376	Human gammaherpesvirus 4 (Epstein-Barr virus)	http://purl.obolibrary.org/obo/NCBITaxon_10376

human immunodeficiency virus infectious disease ; DOID:526	A viral infectious disease that results in destruction of immune system, leading to life-threatening opportunistic infections and cancers, has_material_basis_in Human immunodeficiency virus 1 or has_material_basis_in Human immunodeficiency virus 2, which are transmitted by sexual contact, transmitted by transfer of blood, semen, vaginal fluid, pre-ejaculate, or breast milk, transmitted by congenital method, and transmitted by contaminated needles. The virus infects helper T cells (CD4+ T cells) which are directly or indirectly destroyed, macrophages, and dendritic cells. The infection has symptom diarrhea, has symptom fatigue, has symptom fever, has symptom vaginal yeast infection, has symptom headache, has symptom mouth sores, has symptom muscle aches, has symptom sore throat, and has symptom swollen lymph glands.	http://purl.obolibrary.org/obo/DOID_526
human immunodeficiency virus vaccine ; VO_0000295	A viral vaccine that protects against infection with human immunodeficiency virus that causes AIDS.	http://purl.obolibrary.org/obo/VO_0000295
Human rhinovirus A16 ; NCBITaxon:31708	Found from reported data using NCBI Taxomony Dump: 31708	http://purl.obolibrary.org/obo/NCBITaxon_31708
inactivated influenza vaccine ; VO_0001176	inactivated influenza vaccine is an inactivated viral vaccine that targets at influenza viral infections.	http://purl.obolibrary.org/obo/VO_0001176
Influenza A H1N1 2009 Monovalent Vaccine Novartis ; VO:0000081	Influenza A (H1N1) 2009 Monovalent Vaccine (Novartis)	http://purl.obolibrary.org/obo/VO_0000081
Influenza A virus (A/California/7/2009(H1N1)) ; NCBITaxon:1316510	Found from reported data using NCBI Taxomony Dump: 1316510	http://purl.obolibrary.org/obo/NCBITaxon_1316510
Influenza A virus (A/reassortant/FluMist(California/07/2009 x Ann Arbor/6/1960)(H1N1)) ; NCBITaxon:1701435	Found from reported data using NCBI Taxomony Dump: 1701435	http://purl.obolibrary.org/obo/NCBITaxon_1701435
Influenza A virus ; NCBITaxon:11320	Influenza A virus	http://purl.obolibrary.org/obo/NCBITaxon_11320

Influenza virus vaccine ; VO:0000642	A viral vaccine that protects against infection with influenza virus.	http://purl.obolibrary.org/obo/VO_0000642
Influvac ; VO_0000867	Influvac is an Influenza virus vaccine that is manufactured by Solvay Pharma.	http://purl.obolibrary.org/obo/VO_0000867
Ionizing Radiation ; NCIT:C17052	High-energy radiation capable of producing ionization in substances through which it passes.	http://purl.obolibrary.org/obo/NCIT_C17052
Johnson & Johnson COVID-19 vaccine ; VO:0005159	A SARS-CoV-2 recombinant viral vector vaccine composed of Ad26 vector expressing S protein, Ad26COVS1; JNJ-78436735	http://purl.obolibrary.org/obo/VO_0005159
LC16m8 ; VO:0004091	LC16m8	http://purl.obolibrary.org/obo/VO_0004091
live attenuated influenza vaccine ; VO_0001178	live attenuated influenza vaccine is a live attenuated vaccine that protects against influenza viral infection.	http://purl.obolibrary.org/obo/VO_0001178
Menactra ; VO:0000071	Menactra	http://purl.obolibrary.org/obo/VO_0000071
Meningococcal Polysaccharide Vaccine, Groups A & C, Menomune A/C ; VO:0010725	Meningococcal Polysaccharide Vaccine, Groups A & C, Menomune A/C	http://purl.obolibrary.org/obo/VO_0010725
Menveo ; VO:0001246	Menveo	http://purl.obolibrary.org/obo/VO_0001246
Moderna COVID-19 vaccine ; VO:0005157	A SARS-CoV2 RNA vaccine made of lipid nanoparticle with mRNA which encodes the S-2P antigen, made of the SARS-CoV-2 glycoprotein with a transmembrane anchor and intact S1-S2 cleavage site	http://purl.obolibrary.org/obo/VO_0005157
MRKAd5 HIV-1 gag/pol/nef ; VO:0003133	The MRK adenovirus type 5 human immunodeficiency virus type 1 clade B gag/pol/nef vaccine is a replication-incompetent adenovirus type 5-vectored vaccine that elicits cell-mediated immunity against conserved human immunodeficiency virus proteins.	http://purl.obolibrary.org/obo/VO_0003133
MVA85A ; VO:0003120	MVA85A	http://purl.obolibrary.org/obo/VO_0003120

Mycobacterium tuberculosis ; NCBITaxon:1773	Mycobacterium tuberculosis	http://purl.obolibrary.org/obo/NCBITaxon_1773
NVX-CoV2373 ; VO:0005155	A SARS-CoV 2 (rSARS-CoV-2) subunit vaccine made of nanoparticles composed of a trimeric full-length SARS-CoV-2 spike glycoprotein and Matrix-M1 adjuvant	http://purl.obolibrary.org/obo/VO_0005155
Other ; Other	Other	Other
Oxford AstraZeneca COVID-19 vaccine ; VO:0005158	A SARS-CoV2 recombinat vector vaccine made of a chimpanzee adenovirus-vectored vaccine expressing the SARS-CoV-2 spike protein	http://purl.obolibrary.org/obo/VO_0005158
P. falciparum RTS,S/AS01 ; VO:0003093	A malaria vaccine that consists of hepatitis B surface antigen virus-like particles, incorporating a portion of the Plasmodium falciparum-derived circumsporozoite protein and a liposome-based adjuvant.	http://purl.obolibrary.org/obo/VO_0003093
Pfizer BioNTech COVID-19 vaccine ; VO:0004987	A SARS-CoV-2 RNA vaccine formed from a lipid nanoparticle-formulated trimerized SARS-CoV-2 receptor-binding domain	http://purl.obolibrary.org/obo/VO_0004987
PfSPZ Vaccine ; VO:0004910	a malaria vaccine that protects against malaria caused by Plasmodium falciparum	http://purl.obolibrary.org/obo/VO_0004910
PfSPZ-CVac ; VO:0004911	a malaria vaccine that protects against malaria caused by Plasmodium falciparum	http://purl.obolibrary.org/obo/VO_0004911
PfSPZ-GA1 ; VO:0004912	a malaria vaccine that protects against malaria caused by Plasmodium falciparum	http://purl.obolibrary.org/obo/VO_0004912
Plasmodium coatneyi ; NCBITaxon:208452	Found from reported data using NCBI Taxomony Dump: 208452	http://purl.obolibrary.org/obo/NCBITaxon_208452
Plasmodium cynomolgi strain B ; NCBITaxon:1120755	Found from reported data using NCBI Taxomony Dump: 1120755	http://purl.obolibrary.org/obo/NCBITaxon_1120755
Plasmodium cynomolgi strain Ceylon ; NCBITaxon:5829	Found from reported data using NCBI Taxomony Dump: 5829	http://purl.obolibrary.org/obo/NCBITaxon_5829

Plasmodium falciparum ; NCBITaxon:5833	malaria parasite P. falciparum	http://purl.obolibrary.org/obo/NCBITaxon_5833
Plasmodium falciparum vaccine ; VO:0000087	a malaria vaccine that protects against malaria caused by Plasmodium falciparum.	http://purl.obolibrary.org/obo/VO_0000087
Plasmodium vivax ; NCBITaxon:5855	Found from reported data using NCBI Taxomony Dump: 5855	http://purl.obolibrary.org/obo/NCBITaxon_5855
Pneumovax 23 ; VO:0000088	Pneumovax 23	http://purl.obolibrary.org/obo/VO_0000088
quadrivalent inactivated influenza vaccine ; VO_0010196	quadrivalent inactivated influenza vaccine	https://www.ebi.ac.uk/ols4/ontologies/vo/classes/http%253A%252F%252Fpurl.obolibrary.org%252Fobo%252FVO_0010196
Respiratory syncytial virus ; NCBITaxon:12814	Respiratory syncytial (sin-SISH-uhl) virus, or RSV, is a common respiratory virus that usually causes mild, cold-like symptoms. Most people recover in a week or two, but RSV can be serious, especially for infants and older adults.	http://purl.obolibrary.org/obo/NCBITaxon_12814
rVSV-EBOV ; VO:0004660	An Ebola virus vaccine that uses a recombinant vesicular stomatitis virus (rVSV) vector expressing an Ebola filovirus glycoprotein	http://purl.obolibrary.org/obo/VO_0004660
SARS Coronavirus 2 B.1.1.529 ; UMLS_CUI:C5564753	WHO Name: Omicron. A variant lineage of SARS coronavirus 2 where the following variations in the spike glycoprotein sequence have been identified: deletions of the amino acids at positions 69/70, 143/145 and 212 and amino acid substitutions A67V, T95I, G142D, N211I, G339D, S371L, S373P, S375F, S477N, T478K, E484A, Q493R, G496S, Q498R, N501Y, Y505H, T547K, D614G, H655Y, N679K, P681H, D796Y, N856K, Q954H, N969K and L981F. (NCI)	https://uts.nlm.nih.gov/uts/umls/concept/C5564753

SARS Coronavirus 2 BA.1 ; UMLS_CUI:C5706968	WHO Name: Omicron. A variant lineage of SARS coronavirus 2 where the following variations in the spike glycoprotein sequence have been identified: deletions of the amino acids at positions 69/70, 143/145 and 212 and amino acid substitutions A67V, T95I, G142D, N211I, G339D, S371L, S373P, S375F, S477N, T478K, E484A, Q493R, G496S, Q498R, N501Y, Y505H, T547K, D614G, H655Y, N679K, P681H, N764K, D796Y, N856K, Q954H, N969K and L981F. (NCI).	https://uts.nlm.nih.gov/uts/umls/concept/C5706968
SARS Coronavirus 2 BA.2 ; UMLS_CUI:C5670041	WHO Name: Omicron. A variant lineage of SARS coronavirus 2 where the following variations in the spike glycoprotein sequence have been identified: deletions of the amino acids at positions 25/27 and amino acid substitutions T19I, L24S, G142D, V213G, G339D, S371F, S373P, S375F, T376A, D405N, R408S, K417N, N440K, S477N, T478K, E484A, Q493R, Q498R, N501Y, Y505H, D614G, H655Y, N679K, P681H, N764K, D796Y, Q954H and N969K. (NCI)	https://uts.nlm.nih.gov/uts/umls/concept/C5670041
SARS Coronavirus 2 BA.3 ; UMLS_CUI:C5706967	WHO Name: Omicron. A variant lineage of SARS coronavirus 2 where the following variations in the spike glycoprotein sequence have been identified: deletions of the amino acids at positions 69/70, 143/145 and 212 and amino acid substitutions A67V, G142D, N211I, D614G, H655Y, N679K, P681H, N764K, D796Y, Q954H and N969K. (NCI)	https://uts.nlm.nih.gov/uts/umls/concept/C5706967
SARS Coronavirus 2 BA.4 ; UMLS_CUI:C5706966	WHO Name: Omicron. A variant lineage of SARS coronavirus 2 where the following variations in the spike glycoprotein sequence have been identified: deletions of the amino acids at positions 25/27 and 69/70 and amino acid substitutions T19I, L24S, G142D, V213G, G339D, S371F, S373P, S375F, T376A, D405N, R408S, K417N, N440K, L452R, S477N, T478K, E484A, F486V, Q498R, N501Y, Y505H, D614G, H655Y, N679K, P681H, N764K, D796Y, Q954H and N969K. This variant has two novel amino acid variations, a D61L substitution in the ORF6 protein and a L11F in the ORF7b protein. (NCI)	https://uts.nlm.nih.gov/uts/umls/concept/C5706966

SARS Coronavirus 2 BA.5 ; UMLS_CUI:C5706965	WHO Name: Omicron. A variant lineage of SARS coronavirus 2 where the following variations in the spike glycoprotein sequence have been identified: deletions of the amino acids at positions 25/27 and 69/70 and amino acid substitutions T19I, L24S, G142D, V213G, G339D, S371F, S373P, S375F, T376A, D405N, R408S, K417N, N440K, L452R, S477N, T478K, E484A, F486V, Q498R, N501Y, Y505H, D614G, H655Y, N679K, P681H, N764K, D796Y, Q954H and N969K. (NCI)	https://uts.nlm.nih.gov/uts/umls/concept/C5706965
SARS Coronavirus 2 C.37 ; UMLS_CUI:C5556619	WHO Name: Lambda. A variant lineage of SARS coronavirus 2 where the following variations in the spike glycoprotein sequence have been identified: deletions of the amino acids at positions 247-253 and amino acid substitutions G75V, T76I, L452Q, F490S, D614G and T859N. (NCI)	https://uts.nlm.nih.gov/uts/umls/concept/C5556619
SARS-CoV-2 ; NCBITaxon:2697049	Severe acute respiratory syndrome coronavirus 2, equivalent: 2019-nCoV	http://purl.obolibrary.org/obo/NCBITaxon_2697049
SARS-CoV-2 B.1.1.7 variant ; UMLS_CUI:C5433393	A variant lineage of SARS coronavirus 2 where the following variations in the spike glycoprotein sequence have been identified: deletions of the amino acids at positions 69, 70 and 144 and amino acid substitutions N501Y, A570D, D614G, P681H, T716I, S982A and D1118H. The substitutions E484K, S494P and K1191N have also been detected in some but not all sequences for this lineage. (NCI). Also known as B.1.1.7, 20I/501Y.V1, VOC - 202012/01, and UK variant (LNC)	https://uts.nlm.nih.gov/uts/umls/concept/C5433393
SARS-CoV-2 B.1.351 variant ; UMLS_CUI:C5433395	A variant lineage of SARS coronavirus 2 where the following variations in the spike glycoprotein sequence have been identified: deletions of the amino acids at positions 241-242 and amino acid substitutions D80A, D215G, K417N, E484K, N501Y, D614G and A701V. (NCI). Also known as B.1.351, 501Y.V2, and South Africa variant (LNC)	https://uts.nlm.nih.gov/uts/umls/concept/C5433395
SARS-CoV-2 B.1.617.2 lineage ; UMLS_CUI:C5548982	Also known as WHO Delta variant (LNC)	https://uts.nlm.nih.gov/uts/umls/concept/C5548982

SARS-CoV-2 D614G variant ; UMLS_CUI:C5433391	Known as SARS-CoV-2 USA-WA1/2020. https://www.ncbi.nlm.nih.gov/biosample/SAMN18527778	https://uts.nlm.nih.gov/uts/umls/concept/C5433391
SARS-CoV-2 Mu variants ; UMLS_CUI:C5564751	A variant lineage of SARS coronavirus 2 where the following variations in the spike glycoprotein sequence have been identified: an amino acid insertion 146N and amino acid substitutions T95I, Y144T, Y145S, R346K, E484K, N501Y, D614G, P681H and D950N. (NCI). Also known as SARS-CoV-2 B.1.621.	https://uts.nlm.nih.gov/uts/umls/concept/C5564751
SARS-CoV-2 P.1 variant ; UMLS_CUI:C5433398	A variant lineage of SARS coronavirus 2 where the following variations in the spike glycoprotein sequence have been identified: amino acid substitutions L18F, T20N, P26S, D138Y, R190S, K417T, E484K, N501Y, D614G, H655Y, T1027I and V1176F. (NCI). Also known as SARS-CoV-2 Gamma; P.1	https://uts.nlm.nih.gov/uts/umls/concept/C5433398
SARS-CoV-2 P.2 variant ; UMLS_CUI:C5433392	WHO Name: Zeta. A variant lineage of SARS coronavirus 2 where the following variations in the spike glycoprotein sequence have been identified: amino acid substitutions E484K, D614G and V1176F. The substitution F565L has also been detected in some but not all sequences for this lineage. (NCI).	https://uts.nlm.nih.gov/uts/umls/concept/C5433392
Schistosoma mansoni ; NCBITaxon:6183	Found from reported data using NCBI Taxomony Dump: 6183	http://purl.obolibrary.org/obo/NCBITaxon_6183
Shigella flexneri 2a ; NCBITaxon:42897	Shigella flexneri, serovar 2a. Extended spectrum beta-lactamase producing Shigella flexneri serovar 2a (133131000112102) SNOMEDCT_US	http://purl.obolibrary.org/obo/NCBITaxon_42897
Shigella sonnei ; NCBITaxon:624	A lactose-fermenting bacterium causing dysentery	http://purl.obolibrary.org/obo/NCBITaxon_624
Sinopharm (BBIBP-CorV) ; VO:0005166	A SARS-CoV-2 inactivated whole virus vaccine that produced in Vero cells that is developed by the Beijing Institute of Biological Products.	http://purl.obolibrary.org/obo/VO_0005166
Sputnik V ; VO:0005163	A SARS-CoV-2 recombinant viral vector vaccine composed of Ad26 and Ad5 vectors expressing S protein that lyophilised.	http://purl.obolibrary.org/obo/VO_0005163

Stamaril ; VO:0003139	It is live attenuated YFV vaccine strain 17D manufactured in China, France, Senegal, and the USA. In powder and solvent for suspension for injection in pre-filled syringe.	http://purl.obolibrary.org/obo/VO_0003139
Staphylococcus aureus ; NCBITaxon:1280	Staphylococcus aureus is a Gram-positive, round-shaped bacterium that is a member of the Firmicutes, and it is a usual member of the microbiota of the body, frequently found in the upper respiratory tract and on the skin.	http://purl.obolibrary.org/obo/NCBITaxon_1280
unidentified ; NCBITaxon:32644	Found from reported data using NCBI Taxomony Dump: 32644	http://purl.obolibrary.org/obo/NCBITaxon_32644
Vaccinia virus LC16M8 ; NCBITaxon:10248	Found from reported data using NCBI Taxomony Dump: 10248	http://purl.obolibrary.org/obo/NCBITaxon_10248
Varicella-zoster virus vaccine ; VO:0000669	a Herpesvirus vaccine that is used against Varicella-zoster virus infection.	http://purl.obolibrary.org/obo/VO_0000669
West Nile virus ; NCBITaxon:11082	West Nile virus	http://purl.obolibrary.org/obo/NCBITaxon_11082
Yellow fever 17D vaccine vector ; VO:0000122	a viral vaccine vector that uses Yellow fever vaccine strain 17D as the vector.	http://purl.obolibrary.org/obo/VO_0000122
YF-Vax ; VO:0000121	YF-Vax	http://purl.obolibrary.org/obo/VO_0000121
Zika virus ; NCBITaxon:64320	Found from reported data using NCBI Taxomony Dump: 64320	http://purl.obolibrary.org/obo/NCBITaxon_64320
Zostavax ; VO:0000124	Zostavax	http://purl.obolibrary.org/obo/VO_0000124

23. **lk_exposure_material_pref_map**

Name	Description
exposure_material_reported	exposure_material_preferred
0.5 ml hepatitis b surface antigen vaccine 0.04 mg/ml injection [heplisav-b]	Hepatitis B Surface Antigen Vaccine Injection [Heplisav-B]
1 ml hepatitis b surface antigen vaccine 0.02 mg/ml injection [engerix-b]	Hepatitis B Surface Antigen Vaccine Prefilled Syringe [Engerix-B]

17D-204	Stamaril
2011-2012 trivalent inactivated vaccine	2011-2012 trivalent inactivated vaccine (A/California/7/09 (H1N1), A/Perth /16/2009 (H3N2), and B/Brisbane/60/2008)
ACWYVax	ACWY Vax
Bacillus Calmette Guerin	BCG Vaccine
Bacillus tuberculosis	Mycobacterium tuberculosis
Bacterium tuberculosis	Mycobacterium tuberculosis
Borrelia burdorferi	Borreliella burgdorferi
Borrelia burgdorferi	Borreliella burgdorferi
Borrelia burgdorferi sensu stricto	Borreliella burgdorferi
Borrelia burgdorffragment	Borreliella burgdorferi
chickenpox and shingles virus vaccine	Varicella-zoster virus vaccine
dengue 2 virus DEN-2	Dengue virus 2
dengue 3 virus	Dengue virus 3
dengue type 1 D1 virus	Dengue virus 1
Dengue virus type 1	Dengue virus 1
dengue virus type 1 DEN1	Dengue virus 1
Dengue virus type 2	Dengue virus 2
Dengue virus type 3	Dengue virus 3
dengue virus type I	Dengue virus 1
Dengue virus type II	Dengue virus 2
dengue virus-1 DEN-1	Dengue virus 1
dengue-2 virus	Dengue virus 2
DTaP	Diphtheria-Tetanus-Pertussis vaccine
DTaP vaccine	Diphtheria-Tetanus-Pertussis vaccine
DTP	Diphtheria-Tetanus-Pertussis vaccine
DTP vaccine	Diphtheria-Tetanus-Pertussis vaccine
DTwP	diphtheria, tetanus and whole cell pertussis vaccine
DTwP vaccine	diphtheria, tetanus and whole cell pertussis vaccine
FLUAV	Influenza A virus
fluzone high-dose seasonal influenza vaccine	Fluzone
fluzone intradermal trivalent	Fluzone
Haemamoeba vivax	Plasmodium vivax
HBsAg-1018	HEPLISAV-B
hbv vaccine	Hepatitis B virus vaccine
HCV	Hepacivirus C
Hepatitis C virus	Hepacivirus C
hepatitis C virus HCV	Hepacivirus C
HHV-3	Human alphaherpesvirus 3
hiv vaccine	human immunodeficiency virus vaccine

human hepatitis C virus	Hepacivirus C
human hepatitis C virus HCV	Hepacivirus C
human hepatitis virus C HCV	Hepacivirus C
Human herpes virus 3	Human alphaherpesvirus 3
Human herpesvirus 3	Human alphaherpesvirus 3
human immunodeficiency virus	human immunodeficiency virus infectious disease
human immunodeficiency virus 1	human immunodeficiency virus infectious disease
Human Influenza A Virus	Influenza A virus
Human rhinovirus 16	Human rhinovirus A16
Human rhinovirus type 16	Human rhinovirus A16
Influenza A virus (A/FluMist-CA07/2009(H1N1))	Influenza A virus (A/reassortant/FluMist(California/07/2009 x Ann Arbor/6/1960)(H1N1))
Influenza vaccine	Influenza virus vaccine
Influenza virus type A	Influenza A virus
Lyme disease spirochete	Borreliella burgdorferi
malaria parasite P. falciparum	Plasmodium falciparum
malaria parasite P. vivax	Plasmodium vivax
Meningococcal Polysaccharide (Serogroups A, C, Y and W-135) Diphtheria Toxoid Conjugate Vaccine	Menactra
miscellaneous nucleic acid	unidentified
modified vaccinia virus Ankara expressing antigen 85A	MVA85A
MVA expressing antigen 85A	MVA85A
Mycobacterium tuberculosis typus humanus	Mycobacterium tuberculosis
Mycobacterium tuberculosis var. hominis	Mycobacterium tuberculosis
Mycobacterium tuberculosis variant tuberculosis	Mycobacterium tuberculosis
none	unidentified
not shown	unidentified
not specified	unidentified
other	unidentified
pfspz	PfSPZ Vaccine
Plasmodium (Laverania) falciparum	Plasmodium falciparum
Plasmodium cynomolgi (strain Ceylon)	Plasmodium cynomolgi strain Ceylon
Plasmodium cynomolgi B	Plasmodium cynomolgi strain B
Pneumovax 23 (USA)	Pneumovax 23
Pneumovax 23 injectable product	Pneumovax 23
post-transfusion hepatitis non A non B virus	Hepacivirus C
RSV	Respiratory syncytial virus
S. aureus	Staphylococcus aureus

sanaria pfspz challenge	PfSPZ Vaccine
SARS-CoV2	SARS-CoV-2
sonstige nucleic acid	unidentified
Trivalent inactivated influenza	Influenza virus vaccine
type 1 dengue virus DEN-1	Dengue virus 1
unclassified sequence	unidentified
unidentified organism	unidentified
unidentified root endophyte	unidentified
unknown	unidentified
unknown organism	unidentified
unspecified	unidentified
Vaccinia virus (strain LC16M8)	Vaccinia virus LC16M8
Varicella vaccine	Varicella-zoster virus vaccine
Varicella Zoster Virus	Human alphaherpesvirus 3
varicella zoster virus VZV	Human alphaherpesvirus 3
Varicella-zoster virus	Human alphaherpesvirus 3
varicella-zoster virus VZV	Human alphaherpesvirus 3
VZV	Human alphaherpesvirus 3
WNV	West Nile virus
ZIKV	Zika virus

24. **lk_exposure_process**

Name	Description	Link
exposure_process_preferred		
administering substance in vivo	A planned process by which a material is intentionally given to an organism resulting in exposure of the organism to that substance.	http://purl.obolibrary.org/obo/OBI_0600007
documented exposure without evidence for disease	A process in which an organism is exposed to a substance which is evident from that process having been observed or documented.	
environmental exposure to endemic/ubiquitous agent without evidence for disease	A process in which an organism's exposure to a material entity is assumed from that material being commonly present in the environment of the organism.	
exposure to substance without evidence for disease	An unplanned process in which an organism comes into contact with a substance without evidence for a disease caused by that exposure.	
exposure with existing immune reactivity without evidence for disease	A process in which an organism is exposed to a material entity which is evident by a detectable immune reactivity against it.	http://purl.obolibrary.org/obo/OBI_1110061

infectious challenge	Administering an infectious agent to an organism in order to test if and how an infection will occur.	http://purl.obolibrary.org/obo/OBI_0000712
no exposure	An organism's lifspan which does not include exposure to a substance of interest.	
occurrence of allergic disease	The process in which an allergic disease unfolds.	http://purl.obolibrary.org/obo/OBI_1110012
occurrence of asymptomatic infection	A process in which an infectious agent is in or on the body of an organism without causing detectable disease .	
occurrence of autoimmune disease	The process in which an autoimmune disease unfolds.	http://purl.obolibrary.org/obo/OBI_1110054
occurrence of cancer	The process in which cancer unfolds	http://purl.obolibrary.org/obo/OBI_1110053
occurrence of cancer associated with virus	An occurence of cancer where there is evidence for the presence of a cancer causing oncovirus in the tumor.	https://ontology.iedb.org/ontology/ONTIE_0003313
occurrence of disease	The process in which a disease unfolds.	http://purl.obolibrary.org/obo/OGMS_0000063
occurrence of infectious disease	The process in which an infectious disease unfolds.	http://purl.obolibrary.org/obo/OBI_1110008
solid tissue transplantation	A planned process in which solid tissue is transferred to an organism	https://ontology.iedb.org/ontology/ONTIE_0003311
transfusion	A planned process in which a bodily fluid is transferred into an organism	https://ontology.iedb.org/ontology/ONTIE_0003312
transplantation or transfusion	Transfering a solid tissue (transplant) or bodily fluid (transfusion) to an organism.	http://purl.obolibrary.org/obo/OBI_0000105
unknown	An organism's lifespan for which there is no available information on an exposure to a material entity of interest.	

vaccination	Adminstering a vaccine to an organism with the intention of inducing immunity against antigen components of the vaccine.	

25. **lk_exposure_process_pref_map**

Name	Description
exposure_process_reported	exposure_process_preferred
occurrence of allergy	occurrence of allergic disease
vaccine	vaccination

26. **lk_hmdb**

Name	Description	Link
metabolite_name ; hmdb_id		

(S)-3-Hydroxyisobutyric acid ; HMDB0000023	(S)-3-Hydroxyisobutyric acid, also known as (S)-3-hydroxy-2-methylpropanoate or 3-hydroxy-isobutyrate, belongs to the class of organic compounds known as beta hydroxy acids and derivatives. Beta hydroxy acids and derivatives are compounds containing a carboxylic acid substituted with a hydroxyl group on the C3 carbon atom (S)-3-Hydroxyisobutyric acid is soluble (in water) and a weakly acidic compound (based on its pKa) (S)-3-Hydroxyisobutyric acid has been primarily detected in saliva, urine, blood, and cerebrospinal fluid. Within the cell, (S)-3-hydroxyisobutyric acid is primarily located in the cytoplasm and mitochondria (S)-3-Hydroxyisobutyric acid exists in all eukaryotes, ranging from yeast to humans (S)-3-Hydroxyisobutyric acid can be converted into (S)-methylmalonic acid semialdehyde through the action of the enzymes 3-hydroxyisobutyrate dehydrogenase, mitochondrial and enoyl-CoA hydratase, mitochondrial. In humans, (S)-3-hydroxyisobutyric acid is involved in the valine, leucine and isoleucine degradation pathway (S)-3-Hydroxyisobutyric acid is also involved in several metabolic disorders, some of which include isobutyryl-CoA dehydrogenase deficiency, the maple syrup urine disease pathway, the propionic acidemia pathway, and methylmalonate semialdehyde dehydrogenase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000023

(S)C(S)S-S-Methylcysteine sulfoxide ; HMDB0029432	(S)c(S)S-S-Methylcysteine sulfoxide, also known as kale anemia factor or S-methyl-L-cysteinesulfoxide, belongs to the class of organic compounds known as alpha amino acids. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon) (S)c(S)S-S-Methylcysteine sulfoxide exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Within the cell, (S)c(S)S-S-methylcysteine sulfoxide is primarily located in the cytoplasm. Outside of the human body, (S)c(S)S-S-methylcysteine sulfoxide can be found in brassicas, garden onion, and onion-family vegetables. This makes (S)c(S)S-S-methylcysteine sulfoxide a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0029432
1,1-Dimethylbiguanide ; HMDB0001921	1,1-Dimethylbiguanide, also known as la-6023metformin or glucophage, belongs to the class of organic compounds known as biguanides. These are organic compounds containing two N-linked guanidines. 1,1-Dimethylbiguanide is a drug which is used for use as an adjunct to diet and exercise in adult patients (18 years and older) with niddm. may also be used for the management of metabolic and reproductive abnormalities associated with polycystic ovary syndrome (pcos). jentadueto is for the treatment of patients when both linagliptin and metformin is appropriate. 1,1-Dimethylbiguanide exists as a solid, slightly soluble (in water), and a very strong basic compound (based on its pKa). 1,1-Dimethylbiguanide has been found in human liver, skeletal muscle and muscle tissues, and has also been detected in multiple biofluids, such as feces and blood. Within the cell, 1,1-dimethylbiguanide is primarily located in the cytoplasm. 1,1-Dimethylbiguanide can be biosynthesized from biguanide. 1,1-Dimethylbiguanide has a bitter taste. 1,1-Dimethylbiguanide is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001921

1,1-Dimethylbiguanide ; HMDB01921	1,1-Dimethylbiguanide, also known as la-6023metformin or glucophage, belongs to the class of organic compounds known as biguanides. These are organic compounds containing two N-linked guanidines. 1,1-Dimethylbiguanide is a drug which is used for use as an adjunct to diet and exercise in adult patients (18 years and older) with niddm. may also be used for the management of metabolic and reproductive abnormalities associated with polycystic ovary syndrome (pcos). jentadueto is for the treatment of patients when both linagliptin and metformin is appropriate. 1,1-Dimethylbiguanide exists as a solid, slightly soluble (in water), and a very strong basic compound (based on its pKa). 1,1-Dimethylbiguanide has been found in human liver, skeletal muscle and muscle tissues, and has also been detected in multiple biofluids, such as feces and blood. Within the cell, 1,1-dimethylbiguanide is primarily located in the cytoplasm. 1,1-Dimethylbiguanide can be biosynthesized from biguanide. 1,1-Dimethylbiguanide has a bitter taste. 1,1-Dimethylbiguanide is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001921
1,11-Undecanedicarboxylic acid ; HMDB0002327	Brassylic acid, also known as brassilate or tridecanedioate, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Brassylic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Brassylic acid has been primarily detected in urine. Within the cell, brassylic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome.	http://www.hmdb.ca/metabolites/HMDB0002327

1,2,4-Trimethylbenzene ; HMDB0013733	Pseudocumene, also known as pseudocumol or psi-cumene, belongs to the class of organic compounds known as benzene and substituted derivatives. These are aromatic compounds containing one monocyclic ring system consisting of benzene. Pseudocumene exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Pseudocumene has been primarily detected in urine. Within the cell, pseudocumene is primarily located in the membrane (predicted from logP). Pseudocumene exists in all eukaryotes, ranging from yeast to humans. Pseudocumene can be converted into 2,3,5-trimethylphenol. Pseudocumene is a plastic tasting compound that can be found in black walnut and corn. This makes pseudocumene a potential biomarker for the consumption of these food products. Pseudocumene is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0013733
1,2,4-Trimethylbenzene ; HMDB13733	Pseudocumene, also known as pseudocumol or psi-cumene, belongs to the class of organic compounds known as benzene and substituted derivatives. These are aromatic compounds containing one monocyclic ring system consisting of benzene. Pseudocumene exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Pseudocumene has been primarily detected in urine. Within the cell, pseudocumene is primarily located in the membrane (predicted from logP). Pseudocumene exists in all eukaryotes, ranging from yeast to humans. Pseudocumene can be converted into 2,3,5-trimethylphenol. Pseudocumene is a plastic tasting compound that can be found in black walnut and corn. This makes pseudocumene a potential biomarker for the consumption of these food products. Pseudocumene is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0013733

1,3,7-Trimethyluric acid ; HMDB0002123	1,3,7-Trimethyluric acid, also known as 8-oxy-caffeine or 1,3,7-trimethylate, belongs to the class of organic compounds known as xanthines. These are purine derivatives with a ketone group conjugated at carbons 2 and 6 of the purine moiety. 1,3,7-Trimethyluric acid is soluble (in water) and a very weakly acidic compound (based on its pKa). 1,3,7-Trimethyluric acid has been found in human liver and kidney tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, 1,3,7-trimethyluric acid is primarily located in the cytoplasm. 1,3,7-Trimethyluric acid can be biosynthesized from caffeine through the action of the enzymes cytochrome P450 1A2, cytochrome P450 3A4, cytochrome P450 2C8, cytochrome P450 2C9, and cytochrome P450 2E1. In humans, 1,3,7-trimethyluric acid is involved in the caffeine metabolism pathway. Outside of the human body, 1,3,7-trimethyluric acid can be found in a number of food items such as burbot, adzuki bean, colorado pinyon, and corn salad. This makes 1,3,7-trimethyluric acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0002123
1,3-Dimethyluric acid ; HMDB0001857	1,3-Dimethyluric acid, also known as 1,3-dimethylate or oxytheophylline, belongs to the class of organic compounds known as xanthines. These are purine derivatives with a ketone group conjugated at carbons 2 and 6 of the purine moiety. 1,3-Dimethyluric acid exists as a solid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). 1,3-Dimethyluric acid has been found in human liver and kidney tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, 1,3-dimethyluric acid is primarily located in the cytoplasm. 1,3-Dimethyluric acid can be biosynthesized from 7,9-dihydro-1H-purine-2,6,8(3H)-trione.	http://www.hmdb.ca/metabolites/HMDB0001857

1,3-Dimethyluric acid ; HMDB01857	1,3-Dimethyluric acid, also known as 1,3-dimethylate or oxytheophylline, belongs to the class of organic compounds known as xanthines. These are purine derivatives with a ketone group conjugated at carbons 2 and 6 of the purine moiety. 1,3-Dimethyluric acid exists as a solid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). 1,3-Dimethyluric acid has been found in human liver and kidney tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, 1,3-dimethyluric acid is primarily located in the cytoplasm. 1,3-Dimethyluric acid can be biosynthesized from 7,9-dihydro-1H-purine-2,6,8(3H)-trione.	http://www.hmdb.ca/metabolites/HMDB0001857
1,7-Dimethyluric acid ; HMDB0011103	1,7-Dimethyluric acid, also known as 17-dimethylate, belongs to the class of organic compounds known as xanthines. These are purine derivatives with a ketone group conjugated at carbons 2 and 6 of the purine moiety. 1,7-Dimethyluric acid is slightly soluble (in water) and a very weakly acidic compound (based on its pKa). 1,7-Dimethyluric acid has been found in human liver and kidney tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, 1,7-dimethyluric acid is primarily located in the cytoplasm. 1,7-Dimethyluric acid can be biosynthesized from paraxanthine; which is mediated by the enzymes cytochrome P450 1A2 and cytochrome P450 2A6. In humans, 1,7-dimethyluric acid is involved in the caffeine metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0011103

1,7-Dimethyluric acid ; HMDB11103	1,7-Dimethyluric acid, also known as 17-dimethylate, belongs to the class of organic compounds known as xanthines. These are purine derivatives with a ketone group conjugated at carbons 2 and 6 of the purine moiety. 1,7-Dimethyluric acid is slightly soluble (in water) and a very weakly acidic compound (based on its pKa). 1,7-Dimethyluric acid has been found in human liver and kidney tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, 1,7-dimethyluric acid is primarily located in the cytoplasm. 1,7-Dimethyluric acid can be biosynthesized from paraxanthine; which is mediated by the enzymes cytochrome P450 1A2 and cytochrome P450 2A6. In humans, 1,7-dimethyluric acid is involved in the caffeine metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0011103
1-Methyladenosine ; HMDB0003331	1-Methyladenosine, also known as M1A, belongs to the class of organic compounds known as purine nucleosides. Purine nucleosides are compounds comprising a purine base attached to a ribosyl or deoxyribosyl moiety. 1-Methyladenosine is slightly soluble (in water) and a very weakly acidic compound (based on its pKa). 1-Methyladenosine has been found in human prostate tissue, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, 1-methyladenosine is primarily located in the cytoplasm. 1-Methyladenosine can be biosynthesized from adenosine.	http://www.hmdb.ca/metabolites/HMDB0003331

1-Methyladenosine ; HMDB03331	1-Methyladenosine, also known as M1A, belongs to the class of organic compounds known as purine nucleosides. Purine nucleosides are compounds comprising a purine base attached to a ribosyl or deoxyribosyl moiety. 1-Methyladenosine is slightly soluble (in water) and a very weakly acidic compound (based on its pKa). 1-Methyladenosine has been found in human prostate tissue, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, 1-methyladenosine is primarily located in the cytoplasm. 1-Methyladenosine can be biosynthesized from adenosine.	http://www.hmdb.ca/metabolites/HMDB0003331
1-Methylguanine ; HMDB0003282	1-Methylguanine belongs to the class of organic compounds known as 6-oxopurines. These are purines that carry a C=O group at position 6. Purine is a bicyclic aromatic compound made up of a pyrimidine ring fused to an imidazole ring. 1-Methylguanine is slightly soluble (in water) and a very weakly acidic compound (based on its pKa). Within the cell, 1-methylguanine is primarily located in the cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0003282
1-Methylguanine ; HMDB03282	1-Methylguanine belongs to the class of organic compounds known as 6-oxopurines. These are purines that carry a C=O group at position 6. Purine is a bicyclic aromatic compound made up of a pyrimidine ring fused to an imidazole ring. 1-Methylguanine is slightly soluble (in water) and a very weakly acidic compound (based on its pKa). Within the cell, 1-methylguanine is primarily located in the cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0003282
1-Methylguanosine ; HMDB0001563	1-Methylguanosine, also known as M1G or TRMD protein, belongs to the class of organic compounds known as purine nucleosides. Purine nucleosides are compounds comprising a purine base attached to a ribosyl or deoxyribosyl moiety. 1-Methylguanosine is soluble (in water) and a very weakly acidic compound (based on its pKa). 1-Methylguanosine has been detected in multiple biofluids, such as urine and blood.	http://www.hmdb.ca/metabolites/HMDB0001563

1-Methylguanosine ; HMDB01563	1-Methylguanosine, also known as M1G or TRMD protein, belongs to the class of organic compounds known as purine nucleosides. Purine nucleosides are compounds comprising a purine base attached to a ribosyl or deoxyribosyl moiety. 1-Methylguanosine is soluble (in water) and a very weakly acidic compound (based on its pKa). 1-Methylguanosine has been detected in multiple biofluids, such as urine and blood.	http://www.hmdb.ca/metabolites/HMDB0001563
1-Methylhistamine ; HMDB0000898	1-Methylhistamine, also known as H137, belongs to the class of organic compounds known as 2-arylethylamines. These are primary amines that have the general formula RCCNH2, where R is an organic group. 1-Methylhistamine is slightly soluble (in water) and a very strong basic compound (based on its pKa). 1-Methylhistamine has been found in human bone marrow and brain tissues, and has also been detected in most biofluids, including urine, blood, feces, and cerebrospinal fluid. Within the cell, 1-methylhistamine is primarily located in the cytoplasm. 1-Methylhistamine participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and 1-methylhistamine can be biosynthesized from S-adenosylmethionine and histamine through the action of the enzyme histamine N-methyltransferase. In addition, 1-Methylhistamine can be converted into methylimidazole acetaldehyde; which is catalyzed by the enzyme amine oxidase [flavin-containing] a. In humans, 1-methylhistamine is involved in the histidine metabolism pathway. 1-Methylhistamine is also involved in the metabolic disorder called the histidinemia pathway.	http://www.hmdb.ca/metabolites/HMDB0000898

1-Methylhistamine ; HMDB00898	1-Methylhistamine, also known as H137, belongs to the class of organic compounds known as 2-arylethylamines. These are primary amines that have the general formula RCCNH2, where R is an organic group. 1-Methylhistamine is slightly soluble (in water) and a very strong basic compound (based on its pKa). 1-Methylhistamine has been found in human bone marrow and brain tissues, and has also been detected in most biofluids, including urine, blood, feces, and cerebrospinal fluid. Within the cell, 1-methylhistamine is primarily located in the cytoplasm. 1-Methylhistamine participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and 1-methylhistamine can be biosynthesized from S-adenosylmethionine and histamine through the action of the enzyme histamine N-methyltransferase. In addition, 1-Methylhistamine can be converted into methylimidazole acetaldehyde; which is catalyzed by the enzyme amine oxidase [flavin-containing] a. In humans, 1-methylhistamine is involved in the histidine metabolism pathway. 1-Methylhistamine is also involved in the metabolic disorder called the histidinemia pathway.	http://www.hmdb.ca/metabolites/HMDB0000898

1-Methylhistidine ; HMDB0000001	1-Methylhistidine, also known as 1-mhis, belongs to the class of organic compounds known as histidine and derivatives. Histidine and derivatives are compounds containing cysteine or a derivative thereof resulting from reaction of cysteine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. 1-Methylhistidine has been found in human muscle and skeletal muscle tissues, and has also been detected in most biofluids, including cerebrospinal fluid, saliva, blood, and feces. Within the cell, 1-methylhistidine is primarily located in the cytoplasm. 1-Methylhistidine participates in a number of enzymatic reactions. In particular, 1-Methylhistidine and Beta-alanine can be converted into anserine; which is catalyzed by the enzyme carnosine synthase 1. In addition, Beta-Alanine and 1-methylhistidine can be biosynthesized from anserine; which is mediated by the enzyme cytosolic non-specific dipeptidase. In humans, 1-methylhistidine is involved in the histidine metabolism pathway. 1-Methylhistidine is also involved in the metabolic disorder called the histidinemia pathway.	http://www.hmdb.ca/metabolites/HMDB0000001

1-Methylhistidine ; HMDB00001	1-Methylhistidine, also known as 1-mhis, belongs to the class of organic compounds known as histidine and derivatives. Histidine and derivatives are compounds containing cysteine or a derivative thereof resulting from reaction of cysteine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. 1-Methylhistidine has been found in human muscle and skeletal muscle tissues, and has also been detected in most biofluids, including cerebrospinal fluid, saliva, blood, and feces. Within the cell, 1-methylhistidine is primarily located in the cytoplasm. 1-Methylhistidine participates in a number of enzymatic reactions. In particular, 1-Methylhistidine and Beta-alanine can be converted into anserine; which is catalyzed by the enzyme carnosine synthase 1. In addition, Beta-Alanine and 1-methylhistidine can be biosynthesized from anserine; which is mediated by the enzyme cytosolic non-specific dipeptidase. In humans, 1-methylhistidine is involved in the histidine metabolism pathway. 1-Methylhistidine is also involved in the metabolic disorder called the histidinemia pathway.	http://www.hmdb.ca/metabolites/HMDB0000001
1-Methylinosine ; HMDB0002721	1-Methylinosine, also known as m(1)I, belongs to the class of organic compounds known as purine nucleosides. Purine nucleosides are compounds comprising a purine base attached to a ribosyl or deoxyribosyl moiety. 1-Methylinosine is soluble (in water) and a very weakly acidic compound (based on its pKa). 1-Methylinosine has been detected in multiple biofluids, such as urine and blood. Within the cell, 1-methylinosine is primarily located in the cytoplasm. 1-Methylinosine can be biosynthesized from inosine.	http://www.hmdb.ca/metabolites/HMDB0002721

1-Methylnicotinamide ; HMDB0000699	1-Methylnicotinamide, also known as trigonellinamide or trigonellamide chloride, belongs to the class of organic compounds known as nicotinamides. These are heterocyclic aromatic compounds containing a pyridine ring substituted at position 3 by a carboxamide group. 1-Methylnicotinamide is considered to be a practically insoluble (in water) and relatively neutral molecule. 1-Methylnicotinamide has been detected in multiple biofluids, such as urine and blood. Within the cell, 1-methylnicotinamide is primarily located in the cytoplasm. 1-Methylnicotinamide exists in all eukaryotes, ranging from yeast to humans. 1-Methylnicotinamide participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and 1-methylnicotinamide can be biosynthesized from S-adenosylmethionine and niacinamide through its interaction with the enzyme nicotinamide N-methyltransferase. In addition, 1-Methylnicotinamide can be converted into N1-methyl-2-pyridone-5-carboxamide through the action of the enzyme aldehyde oxidase. In humans, 1-methylnicotinamide is involved in the nicotinate and nicotinamide metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0000699

1-Methylnicotinamide ; HMDB00699	1-Methylnicotinamide, also known as trigonellinamide or trigonellamide chloride, belongs to the class of organic compounds known as nicotinamides. These are heterocyclic aromatic compounds containing a pyridine ring substituted at position 3 by a carboxamide group. 1-Methylnicotinamide is considered to be a practically insoluble (in water) and relatively neutral molecule. 1-Methylnicotinamide has been detected in multiple biofluids, such as urine and blood. Within the cell, 1-methylnicotinamide is primarily located in the cytoplasm. 1-Methylnicotinamide exists in all eukaryotes, ranging from yeast to humans. 1-Methylnicotinamide participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and 1-methylnicotinamide can be biosynthesized from S-adenosylmethionine and niacinamide through its interaction with the enzyme nicotinamide N-methyltransferase. In addition, 1-Methylnicotinamide can be converted into N1-methyl-2-pyridone-5-carboxamide through the action of the enzyme aldehyde oxidase. In humans, 1-methylnicotinamide is involved in the nicotinate and nicotinamide metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0000699
1-Methyluric acid ; HMDB0003099	1-Methyluric acid, also known as 1-methylurate, belongs to the class of organic compounds known as xanthines. These are purine derivatives with a ketone group conjugated at carbons 2 and 6 of the purine moiety. 1-Methyluric acid is slightly soluble (in water) and a very weakly acidic compound (based on its pKa). 1-Methyluric acid has been found in human liver and kidney tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, 1-methyluric acid is primarily located in the cytoplasm. 1-Methyluric acid can be biosynthesized from 1-methylxanthine; which is catalyzed by the enzyme xanthine dehydrogenase/oxidase. In humans, 1-methyluric acid is involved in the caffeine metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0003099

1-Methyluric acid ; HMDB03099	1-Methyluric acid, also known as 1-methylurate, belongs to the class of organic compounds known as xanthines. These are purine derivatives with a ketone group conjugated at carbons 2 and 6 of the purine moiety. 1-Methyluric acid is slightly soluble (in water) and a very weakly acidic compound (based on its pKa). 1-Methyluric acid has been found in human liver and kidney tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, 1-methyluric acid is primarily located in the cytoplasm. 1-Methyluric acid can be biosynthesized from 1-methylxanthine; which is catalyzed by the enzyme xanthine dehydrogenase/oxidase. In humans, 1-methyluric acid is involved in the caffeine metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0003099
1-Methylxanthine ; HMDB0010738	1-Methylxanthine belongs to the class of organic compounds known as xanthines. These are purine derivatives with a ketone group conjugated at carbons 2 and 6 of the purine moiety. 1-Methylxanthine is soluble (in water) and a very weakly acidic compound (based on its pKa). 1-Methylxanthine has been found in human liver and kidney tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, 1-methylxanthine is primarily located in the cytoplasm. 1-Methylxanthine participates in a number of enzymatic reactions. In particular, 1-Methylxanthine and formaldehyde can be biosynthesized from theophylline through its interaction with the enzyme cytochrome P450 1A2. In addition, 1-Methylxanthine can be converted into 1-methyluric acid through its interaction with the enzyme xanthine dehydrogenase/oxidase. In humans, 1-methylxanthine is involved in the caffeine metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0010738

10-HDoHE ; HMDB0060037	10-Hdohe belongs to the class of organic compounds known as very long-chain fatty acids. These are fatty acids with an aliphatic tail that contains at least 22 carbon atoms. 10-Hdohe is considered to be a practically insoluble (in water) and relatively neutral molecule. 10-Hdohe has been detected in multiple biofluids, such as blood and urine. Within the cell, 10-hdohe is primarily located in the membrane (predicted from logP), cytoplasm and adiposome.	http://www.hmdb.ca/metabolites/HMDB0060037
10-HDoHE ; HMDB60037	10-Hdohe belongs to the class of organic compounds known as very long-chain fatty acids. These are fatty acids with an aliphatic tail that contains at least 22 carbon atoms. 10-Hdohe is considered to be a practically insoluble (in water) and relatively neutral molecule. 10-Hdohe has been detected in multiple biofluids, such as blood and urine. Within the cell, 10-hdohe is primarily located in the membrane (predicted from logP), cytoplasm and adiposome.	http://www.hmdb.ca/metabolites/HMDB0060037
10Z-Heptadecenoic acid ; HMDB0060038	, also known as 17:1 N-7 cis or fa(17:1(10Z)), belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Thus, is considered to be a fatty acid lipid molecule. is considered to be a practically insoluble (in water) and relatively neutral molecule. has been detected in multiple biofluids, such as blood, urine, and feces. Within the cell, is primarily located in the membrane (predicted from logP), cytoplasm and adiposome.	http://www.hmdb.ca/metabolites/HMDB0060038

10Z-Heptadecenoic acid ; HMDB60038	, also known as 17:1 N-7 cis or fa(17:1(10Z)), belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Thus, is considered to be a fatty acid lipid molecule. is considered to be a practically insoluble (in water) and relatively neutral molecule. has been detected in multiple biofluids, such as blood, urine, and feces. Within the cell, is primarily located in the membrane (predicted from logP), cytoplasm and adiposome.	http://www.hmdb.ca/metabolites/HMDB0060038
10Z-Nonadecenoic acid ; HMDB0013622	, also known as fa(19:1(10Z)) or 10-nonadecenoate, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Thus, is considered to be a fatty acid lipid molecule. is considered to be a practically insoluble (in water) and relatively neutral molecule. has been detected in multiple biofluids, such as feces, blood, and urine. Within the cell, is primarily located in the membrane (predicted from logP), cytoplasm and adiposome.	http://www.hmdb.ca/metabolites/HMDB0013622
10Z-Nonadecenoic acid ; HMDB13622	, also known as fa(19:1(10Z)) or 10-nonadecenoate, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Thus, is considered to be a fatty acid lipid molecule. is considered to be a practically insoluble (in water) and relatively neutral molecule. has been detected in multiple biofluids, such as feces, blood, and urine. Within the cell, is primarily located in the membrane (predicted from logP), cytoplasm and adiposome.	http://www.hmdb.ca/metabolites/HMDB0013622

11(R)-HETE ; HMDB0004682	, also known as 11-hete, belongs to the class of organic compounds known as hydroxyeicosatetraenoic acids. These are eicosanoic acids with an attached hydroxyl group and four CC double bonds. Thus, is considered to be an eicosanoid lipid molecule. is considered to be a practically insoluble (in water) and relatively neutral molecule. has been detected in multiple biofluids, such as blood, cerebrospinal fluid, and urine. Within the cell, is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0004682
11(R)-HETE ; HMDB04682	, also known as 11-hete, belongs to the class of organic compounds known as hydroxyeicosatetraenoic acids. These are eicosanoic acids with an attached hydroxyl group and four CC double bonds. Thus, is considered to be an eicosanoid lipid molecule. is considered to be a practically insoluble (in water) and relatively neutral molecule. has been detected in multiple biofluids, such as blood, cerebrospinal fluid, and urine. Within the cell, is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0004682
11-HDoHE ; HMDB0060040	11-Hdohe belongs to the class of organic compounds known as very long-chain fatty acids. These are fatty acids with an aliphatic tail that contains at least 22 carbon atoms. 11-Hdohe is considered to be a practically insoluble (in water) and relatively neutral molecule. 11-Hdohe has been detected in multiple biofluids, such as blood and urine. Within the cell, 11-hdohe is primarily located in the membrane (predicted from logP), cytoplasm and adiposome.	http://www.hmdb.ca/metabolites/HMDB0060040

11-HDoHE ; HMDB60040	11-Hdohe belongs to the class of organic compounds known as very long-chain fatty acids. These are fatty acids with an aliphatic tail that contains at least 22 carbon atoms. 11-Hdohe is considered to be a practically insoluble (in water) and relatively neutral molecule. 11-Hdohe has been detected in multiple biofluids, such as blood and urine. Within the cell, 11-hdohe is primarily located in the membrane (predicted from logP), cytoplasm and adiposome.	http://www.hmdb.ca/metabolites/HMDB0060040
11Z-Eicosenoic acid ; HMDB0002231	cis-Gondoic acid, also known as 11-eicosenoic acid or (11Z)-eicosenoate, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. cis-Gondoic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. cis-Gondoic acid has been detected in multiple biofluids, such as saliva, blood, and urine. Within the cell, cis-gondoic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. cis-Gondoic acid is also a parent compound for other transformation products, including but not limited to, N-(11Z-icosenoyl)-sphingosine-1-phosphocholine, 1-palmitoyl-2-(11Z-eicosenoyl)-sn-glycero-3-phosphocholine, and N-gondoylethanolamine. Outside of the human body, cis-gondoic acid can be found in a number of food items such as pomegranate, rocket salad (ssp.), fishes, and brassicas. This makes cis-gondoic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0002231

11Z-Eicosenoic acid ; HMDB02231	cis-Gondoic acid, also known as 11-eicosenoic acid or (11Z)-eicosenoate, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. cis-Gondoic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. cis-Gondoic acid has been detected in multiple biofluids, such as saliva, blood, and urine. Within the cell, cis-gondoic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. cis-Gondoic acid is also a parent compound for other transformation products, including but not limited to, N-(11Z-icosenoyl)-sphingosine-1-phosphocholine, 1-palmitoyl-2-(11Z-eicosenoyl)-sn-glycero-3-phosphocholine, and N-gondoylethanolamine. Outside of the human body, cis-gondoic acid can be found in a number of food items such as pomegranate, rocket salad (ssp.), fishes, and brassicas. This makes cis-gondoic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0002231
12,13-DHOME ; HMDB0004705	12,13-Dihome, also known as 12,13-dhoa or isoleukotoxin, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Thus, 12,13-dihome is considered to be an octadecanoid lipid molecule. 12,13-Dihome is considered to be a practically insoluble (in water) and relatively neutral molecule. 12,13-Dihome has been detected in multiple biofluids, such as blood, cerebrospinal fluid, and urine. Within the cell, 12,13-dihome is primarily located in the membrane (predicted from logP), cytoplasm and adiposome.	http://www.hmdb.ca/metabolites/HMDB0004705

12,13-DHOME ; HMDB04705	12,13-Dihome, also known as 12,13-dhoa or isoleukotoxin, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Thus, 12,13-dihome is considered to be an octadecanoid lipid molecule. 12,13-Dihome is considered to be a practically insoluble (in water) and relatively neutral molecule. 12,13-Dihome has been detected in multiple biofluids, such as blood, cerebrospinal fluid, and urine. Within the cell, 12,13-dihome is primarily located in the membrane (predicted from logP), cytoplasm and adiposome.	http://www.hmdb.ca/metabolites/HMDB0004705
12-HEPE ; HMDB0010202	(+/-)-12-hepe belongs to the class of organic compounds known as hydroxyeicosapentaenoic acids. These are eicosanoic acids with an attached hydroxyl group and five CC double bonds. Thus, (+/-)-12-hepe is considered to be an eicosanoid lipid molecule (+/-)-12-hepe is considered to be a practically insoluble (in water) and relatively neutral molecule (+/-)-12-hepe has been detected in multiple biofluids, such as blood and urine. Within the cell, (+/-)-12-hepe is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0010202
12-HEPE ; HMDB10202	(+/-)-12-hepe belongs to the class of organic compounds known as hydroxyeicosapentaenoic acids. These are eicosanoic acids with an attached hydroxyl group and five CC double bonds. Thus, (+/-)-12-hepe is considered to be an eicosanoid lipid molecule (+/-)-12-hepe is considered to be a practically insoluble (in water) and relatively neutral molecule (+/-)-12-hepe has been detected in multiple biofluids, such as blood and urine. Within the cell, (+/-)-12-hepe is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0010202

12-HETE ; HMDB0006111	, also known as 12-R-hete, belongs to the class of organic compounds known as hydroxyeicosatetraenoic acids. These are eicosanoic acids with an attached hydroxyl group and four CC double bonds. Thus, is considered to be an eicosanoid lipid molecule. is considered to be a practically insoluble (in water) and relatively neutral molecule. has been primarily detected in saliva, blood, urine, and cerebrospinal fluid. Within the cell, is primarily located in the membrane (predicted from logP) and cytoplasm. has been found to be associated with the diseases known as cerebral vasospasm; has also been linked to the inborn metabolic disorders including peroxisomal biogenesis defect.	http://www.hmdb.ca/metabolites/HMDB0006111
12-HETE ; HMDB06111	, also known as 12-R-hete, belongs to the class of organic compounds known as hydroxyeicosatetraenoic acids. These are eicosanoic acids with an attached hydroxyl group and four CC double bonds. Thus, is considered to be an eicosanoid lipid molecule. is considered to be a practically insoluble (in water) and relatively neutral molecule. has been primarily detected in saliva, blood, urine, and cerebrospinal fluid. Within the cell, is primarily located in the membrane (predicted from logP) and cytoplasm. has been found to be associated with the diseases known as cerebral vasospasm; has also been linked to the inborn metabolic disorders including peroxisomal biogenesis defect.	http://www.hmdb.ca/metabolites/HMDB0006111

13-Methylmyristic acid ; HMDB0061707	Isopentadecylic acid, also known as iso-C15 or 13-MTD, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Isopentadecylic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Isopentadecylic acid has been detected in multiple biofluids, such as feces and urine. Within the cell, isopentadecylic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. Isopentadecylic acid can be converted into isopentadecanoyl-CoA.	http://www.hmdb.ca/metabolites/HMDB0061707
13S-hydroxyoctadecadienoic acid ; HMDB0004667	13S-Hode, also known as 13-HODD or 13-lox, belongs to the class of organic compounds known as lineolic acids and derivatives. These are derivatives of lineolic acid. Lineolic acid is a polyunsaturated omega-6 18 carbon long fatty acid, with two CC double bonds at the 9- and 12-positions. Thus, 13S-hode is considered to be an octadecanoid lipid molecule. 13S-Hode is considered to be a practically insoluble (in water) and relatively neutral molecule. 13S-Hode has been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid. Within the cell, 13S-hode is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0004667
13S-hydroxyoctadecadienoic acid ; HMDB04667	13S-Hode, also known as 13-HODD or 13-lox, belongs to the class of organic compounds known as lineolic acids and derivatives. These are derivatives of lineolic acid. Lineolic acid is a polyunsaturated omega-6 18 carbon long fatty acid, with two CC double bonds at the 9- and 12-positions. Thus, 13S-hode is considered to be an octadecanoid lipid molecule. 13S-Hode is considered to be a practically insoluble (in water) and relatively neutral molecule. 13S-Hode has been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid. Within the cell, 13S-hode is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0004667

14-HDoHE ; HMDB0060044	14-Hdohe belongs to the class of organic compounds known as lineolic acids and derivatives. These are derivatives of lineolic acid. Lineolic acid is a polyunsaturated omega-6 18 carbon long fatty acid, with two CC double bonds at the 9- and 12-positions. 14-Hdohe is considered to be a practically insoluble (in water) and relatively neutral molecule. 14-Hdohe has been detected in multiple biofluids, such as blood and urine. Within the cell, 14-hdohe is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0060044
14-HDoHE ; HMDB60044	14-Hdohe belongs to the class of organic compounds known as lineolic acids and derivatives. These are derivatives of lineolic acid. Lineolic acid is a polyunsaturated omega-6 18 carbon long fatty acid, with two CC double bonds at the 9- and 12-positions. 14-Hdohe is considered to be a practically insoluble (in water) and relatively neutral molecule. 14-Hdohe has been detected in multiple biofluids, such as blood and urine. Within the cell, 14-hdohe is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0060044

15(S)-HETE ; HMDB0003876	15S-Hete, also known as icomucret or 15(S)-hete, belongs to the class of organic compounds known as hydroxyeicosatetraenoic acids. These are eicosanoic acids with an attached hydroxyl group and four CC double bonds. Thus, 15S-hete is considered to be an eicosanoid lipid molecule. 15S-Hete is considered to be a practically insoluble (in water) and relatively neutral molecule. 15S-Hete has been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid. Within the cell, 15S-hete is primarily located in the membrane (predicted from logP) and cytoplasm. In humans, 15S-hete is involved in the celecoxib action pathway, the antrafenine action pathway, the fenoprofen action pathway, and the nabumetone action pathway. 15S-Hete is also involved in a couple of metabolic disorders, which include leukotriene C4 synthesis deficiency and the tiaprofenic Acid action pathway. 15S-Hete has been linked to the inborn metabolic disorders including peroxisomal biogenesis defect.	http://www.hmdb.ca/metabolites/HMDB0003876

15(S)-HETE ; HMDB03876	15S-Hete, also known as icomucret or 15(S)-hete, belongs to the class of organic compounds known as hydroxyeicosatetraenoic acids. These are eicosanoic acids with an attached hydroxyl group and four CC double bonds. Thus, 15S-hete is considered to be an eicosanoid lipid molecule. 15S-Hete is considered to be a practically insoluble (in water) and relatively neutral molecule. 15S-Hete has been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid. Within the cell, 15S-hete is primarily located in the membrane (predicted from logP) and cytoplasm. In humans, 15S-hete is involved in the celecoxib action pathway, the antrafenine action pathway, the fenoprofen action pathway, and the nabumetone action pathway. 15S-Hete is also involved in a couple of metabolic disorders, which include leukotriene C4 synthesis deficiency and the tiaprofenic Acid action pathway. 15S-Hete has been linked to the inborn metabolic disorders including peroxisomal biogenesis defect.	http://www.hmdb.ca/metabolites/HMDB0003876
15-Methylpalmitate ; HMDB0061709	15-Methylpalmitate, also known as 15-methylhexadecanoate, is a fatty acid methyl ester (FAME). It has an exact mass of 269.25 g/mol and the molecular formula is C17H33O2. Methylpalmitate is a biomarker for the consumption of butte	http://www.hmdb.ca/metabolites/HMDB0061709
16-HDoHE ; HMDB0060047	16-Hdohe belongs to the class of organic compounds known as very long-chain fatty acids. These are fatty acids with an aliphatic tail that contains at least 22 carbon atoms. 16-Hdohe is considered to be a practically insoluble (in water) and relatively neutral molecule. 16-Hdohe has been detected in multiple biofluids, such as blood and urine. Within the cell, 16-hdohe is primarily located in the membrane (predicted from logP), cytoplasm and adiposome.	http://www.hmdb.ca/metabolites/HMDB0060047

16-HDoHE ; HMDB60047	16-Hdohe belongs to the class of organic compounds known as very long-chain fatty acids. These are fatty acids with an aliphatic tail that contains at least 22 carbon atoms. 16-Hdohe is considered to be a practically insoluble (in water) and relatively neutral molecule. 16-Hdohe has been detected in multiple biofluids, such as blood and urine. Within the cell, 16-hdohe is primarily located in the membrane (predicted from logP), cytoplasm and adiposome.	http://www.hmdb.ca/metabolites/HMDB0060047
16-Hydroxy hexadecanoic acid ; HMDB0006294		http://www.hmdb.ca/metabolites/HMDB0006294
16-Hydroxy hexadecanoic acid ; HMDB06294		http://www.hmdb.ca/metabolites/HMDB0006294
16a-hydroxy DHEA 3-sulfate ; HMDB0062544	16a-Hydroxy dhea 3-sulfate belongs to the class of organic compounds known as sulfated steroids. These are sterol lipids containing a sulfate group attached to the steroid skeleton. 16a-Hydroxy dhea 3-sulfate is considered to be a practically insoluble (in water) and relatively neutral molecule. 16a-Hydroxy dhea 3-sulfate has been found in human hepatic tissue, and has also been primarily detected in urine. Within the cell, 16a-hydroxy dhea 3-sulfate is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0062544

17-HDoHE ; HMDB0010213	(+/-)-17-hdohe, also known as 17-hydroxy-dha or 17(R)hdohe, belongs to the class of organic compounds known as very long-chain fatty acids. These are fatty acids with an aliphatic tail that contains at least 22 carbon atoms. Thus, (+/-)-17-hdohe is considered to be a docosanoid lipid molecule (+/-)-17-hdohe is considered to be a practically insoluble (in water) and relatively neutral molecule (+/-)-17-hdohe has been detected in multiple biofluids, such as blood and urine. Within the cell, (+/-)-17-hdohe is primarily located in the membrane (predicted from logP), cytoplasm and adiposome (+/-)-17-hdohe can be biosynthesized from all-cis-docosa-4,7,10,13,16,19-hexaenoic acid.	http://www.hmdb.ca/metabolites/HMDB0010213
17-HDoHE ; HMDB10213	(+/-)-17-hdohe, also known as 17-hydroxy-dha or 17(R)hdohe, belongs to the class of organic compounds known as very long-chain fatty acids. These are fatty acids with an aliphatic tail that contains at least 22 carbon atoms. Thus, (+/-)-17-hdohe is considered to be a docosanoid lipid molecule (+/-)-17-hdohe is considered to be a practically insoluble (in water) and relatively neutral molecule (+/-)-17-hdohe has been detected in multiple biofluids, such as blood and urine. Within the cell, (+/-)-17-hdohe is primarily located in the membrane (predicted from logP), cytoplasm and adiposome (+/-)-17-hdohe can be biosynthesized from all-cis-docosa-4,7,10,13,16,19-hexaenoic acid.	http://www.hmdb.ca/metabolites/HMDB0010213

17-Methylstearate ; HMDB0061710	Isononadecanoic acid, also known as 17-methylstearic acid or 17-methyl-octadecanoate, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Isononadecanoic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Isononadecanoic acid has been primarily detected in urine. Within the cell, isononadecanoic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. Isononadecanoic acid can be biosynthesized from octadecanoic acid. Outside of the human body, isononadecanoic acid can be found in fishes. This makes isononadecanoic acid a potential biomarker for the consumption of this food product.	http://www.hmdb.ca/metabolites/HMDB0061710
17-Methylstearate ; HMDB61710	Isononadecanoic acid, also known as 17-methylstearic acid or 17-methyl-octadecanoate, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Isononadecanoic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Isononadecanoic acid has been primarily detected in urine. Within the cell, isononadecanoic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. Isononadecanoic acid can be biosynthesized from octadecanoic acid. Outside of the human body, isononadecanoic acid can be found in fishes. This makes isononadecanoic acid a potential biomarker for the consumption of this food product.	http://www.hmdb.ca/metabolites/HMDB0061710

1H-Indole-3-acetamide ; HMDB0029739	1H-Indole-3-acetamide, also known as auxin amide or 2-(3-indolyl)acetamide, belongs to the class of organic compounds known as 3-alkylindoles. 3-alkylindoles are compounds containing an indole moiety that carries an alkyl chain at the 3-position. 1H-Indole-3-acetamide exists as a solid, slightly soluble (in water), and an extremely weak acidic (essentially neutral) compound (based on its pKa). Within the cell, 1H-indole-3-acetamide is primarily located in the cytoplasm. 1H-Indole-3-acetamide can be biosynthesized from acetamide. Outside of the human body, 1H-indole-3-acetamide can be found in a number of food items such as epazote, cowpea, passion fruit, and japanese persimmon. This makes 1H-indole-3-acetamide a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0029739
1H-Indole-3-acetamide ; HMDB29739	1H-Indole-3-acetamide, also known as auxin amide or 2-(3-indolyl)acetamide, belongs to the class of organic compounds known as 3-alkylindoles. 3-alkylindoles are compounds containing an indole moiety that carries an alkyl chain at the 3-position. 1H-Indole-3-acetamide exists as a solid, slightly soluble (in water), and an extremely weak acidic (essentially neutral) compound (based on its pKa). Within the cell, 1H-indole-3-acetamide is primarily located in the cytoplasm. 1H-Indole-3-acetamide can be biosynthesized from acetamide. Outside of the human body, 1H-indole-3-acetamide can be found in a number of food items such as epazote, cowpea, passion fruit, and japanese persimmon. This makes 1H-indole-3-acetamide a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0029739

1H-Indole-3-carboxaldehyde ; HMDB0029737	1H-Indole-3-carboxaldehyde, also known as indole-3-aldehyde or 3-formylindole, belongs to the class of organic compounds known as indoles. Indoles are compounds containing an indole moiety, which consists of pyrrole ring fused to benzene to form 2,3-benzopyrrole. 1H-Indole-3-carboxaldehyde exists as a solid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). Within the cell, 1H-indole-3-carboxaldehyde is primarily located in the cytoplasm. Outside of the human body, 1H-indole-3-carboxaldehyde can be found in a number of food items such as garden tomato, cucumber, brussel sprouts, and barley. This makes 1H-indole-3-carboxaldehyde a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0029737
2,4-Dihydroxybutanoic acid ; HMDB0000360	2,4-Dihydroxy-butanoic acid, also known as 2,4-dihydroxybutyrate or 3-deoxytetronic acid, belongs to the class of organic compounds known as short-chain hydroxy acids and derivatives. These are hydroxy acids with an alkyl chain the contains less than 6 carbon atoms. 2,4-Dihydroxy-butanoic acid is soluble (in water) and a weakly acidic compound (based on its pKa). 2,4-Dihydroxy-butanoic acid has been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid.	http://www.hmdb.ca/metabolites/HMDB0000360

2-Aminobenzoic acid ; HMDB0001123	2-Aminobenzoic acid, also known as anthranilate or anthranilic acid, belongs to the class of organic compounds known as aminobenzoic acids. These are benzoic acids containing an amine group attached to the benzene moiety. 2-Aminobenzoic acid exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). 2-Aminobenzoic acid has been found in human epidermis tissue, and has also been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, 2-aminobenzoic acid is primarily located in the cytoplasm and mitochondria. 2-Aminobenzoic acid exists in all eukaryotes, ranging from yeast to humans. 2-Aminobenzoic acid participates in a number of enzymatic reactions. In particular, 2-Aminobenzoic acid and formic acid can be biosynthesized from formylanthranilic acid through the action of the enzyme kynurenine formamidase. Furthermore, 2-Aminobenzoic acid and L-alanine can be biosynthesized from L-kynurenine; which is catalyzed by the enzyme kynureninase. Furthermore, Pyruvic acid, L-glutamic acid, and 2-aminobenzoic acid can be biosynthesized from chorismate and L-glutamine through its interaction with the enzyme anthranilate synthase component. Finally, 2-Aminobenzoic acid and phosphoribosyl pyrophosphate can be converted into N-(5-phosphoribosyl)-anthranilate through the action of the enzyme anthranilate phosphoribosyltransferase. In humans, 2-aminobenzoic acid is involved in the tryptophan metabolism pathway. Outside of the human body, 2-aminobenzoic acid can be found in a number of food items such as alpine sweetvetch, corn, garden tomato, and conch. This makes 2-aminobenzoic acid a potential biomarker for the consumption of these food products. 2-Aminobenzoic acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001123

2-Aminoheptanoate ; HMDB0094649	2-Aminoheptanoate, also known as a-aminoenanthate or 2-aminoenanthic acid, belongs to the class of organic compounds known as alpha amino acids. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon). 2-Aminoheptanoate is soluble (in water) and a moderately acidic compound (based on its pKa). 2-Aminoheptanoate has been primarily detected in feces.	http://www.hmdb.ca/metabolites/HMDB0094649
2-aminophenol sulphate ; HMDB0061116	2-Aminophenol sulphate belongs to the class of organic compounds known as phenylsulfates. Phenylsulfates are compounds containing a sulfuric acid group conjugated to a phenyl group. 2-Aminophenol sulphate is slightly soluble (in water) and an extremely strong acidic compound (based on its pKa). 2-Aminophenol sulphate can be biosynthesized from 2-aminophenol.	http://www.hmdb.ca/metabolites/HMDB0061116
2-Ethylhydracrylic acid ; HMDB0000396	2-Ethyl-hydracrylic acid, also known as 2-(hydroxymethyl)-butyrate or 3-hydroxy-2-ethylpropanoate, belongs to the class of organic compounds known as hydroxy fatty acids. These are fatty acids in which the chain bears a hydroxyl group. 2-Ethyl-hydracrylic acid is soluble (in water) and a weakly acidic compound (based on its pKa). 2-Ethyl-hydracrylic acid has been detected in multiple biofluids, such as urine and blood. Within the cell, 2-ethyl-hydracrylic acid is primarily located in the cytoplasm and adiposome. 2-Ethyl-hydracrylic acid has been found to be associated with several diseases known as 3-methylglutaconic aciduria type V and short/branched chain acyl-CoA dehydrogenase deficiency; 2-ethyl-hydracrylic acid has also been linked to the inborn metabolic disorders including 3-methylglutaconic aciduria type ii, x-linked.	http://www.hmdb.ca/metabolites/HMDB0000396

2-Fucosyllactose ; HMDB0002098	2-Fucosyllactose belongs to the class of organic compounds known as oligosaccharides. These are carbohydrates made up of 3 to 10 monosaccharide units linked to each other through glycosidic bonds. 2-Fucosyllactose is soluble (in water) and a very weakly acidic compound (based on its pKa). 2-Fucosyllactose has been detected in multiple biofluids, such as feces and breast milk.	http://www.hmdb.ca/metabolites/HMDB0002098
2-Furoylglycine ; HMDB0000439	2-Furoylglycine, also known as pyromucurate or pyromucuric acid, belongs to the class of organic compounds known as n-acyl-alpha amino acids. N-acyl-alpha amino acids are compounds containing an alpha amino acid which bears an acyl group at its terminal nitrogen atom. 2-Furoylglycine exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). 2-Furoylglycine has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, 2-furoylglycine is primarily located in the cytoplasm. 2-Furoylglycine can be biosynthesized from 2-furoic acid.	http://www.hmdb.ca/metabolites/HMDB0000439
2-Furoylglycine ; HMDB00439	2-Furoylglycine, also known as pyromucurate or pyromucuric acid, belongs to the class of organic compounds known as n-acyl-alpha amino acids. N-acyl-alpha amino acids are compounds containing an alpha amino acid which bears an acyl group at its terminal nitrogen atom. 2-Furoylglycine exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). 2-Furoylglycine has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, 2-furoylglycine is primarily located in the cytoplasm. 2-Furoylglycine can be biosynthesized from 2-furoic acid.	http://www.hmdb.ca/metabolites/HMDB0000439

2-Hydroxy-3-methylbutyric acid ; HMDB0000407	2-Hydroxy-3-methylbutyric acid, also known as 2-hydroxyisovaleric acid or 3-methyl-2-hydroxybutyric acid, belongs to the class of organic compounds known as hydroxy fatty acids. These are fatty acids in which the chain bears a hydroxyl group. 2-Hydroxy-3-methylbutyric acid is soluble (in water) and a weakly acidic compound (based on its pKa). 2-Hydroxy-3-methylbutyric acid has been detected in most biofluids, including saliva, urine, cerebrospinal fluid, and blood. Within the cell, 2-hydroxy-3-methylbutyric acid is primarily located in the cytoplasm and adiposome. 2-Hydroxy-3-methylbutyric acid exists in all eukaryotes, ranging from yeast to humans. 2-Hydroxy-3-methylbutyric acid participates in a number of enzymatic reactions. In particular, 2-hydroxy-3-methylbutyric acid can be biosynthesized from isovaleric acid. 2-Hydroxy-3-methylbutyric acid can also be converted into 2-hydroxyisovaleryl-CoA. 2-Hydroxy-3-methylbutyric acid has been found to be associated with the diseases known as dihydrolipoamide dehydrogenase deficiency; 2-hydroxy-3-methylbutyric acid has also been linked to the inborn metabolic disorders including maple syrup urine disease.	http://www.hmdb.ca/metabolites/HMDB0000407

2-Hydroxy-3-methylbutyric acid ; HMDB00407	2-Hydroxy-3-methylbutyric acid, also known as 2-hydroxyisovaleric acid or 3-methyl-2-hydroxybutyric acid, belongs to the class of organic compounds known as hydroxy fatty acids. These are fatty acids in which the chain bears a hydroxyl group. 2-Hydroxy-3-methylbutyric acid is soluble (in water) and a weakly acidic compound (based on its pKa). 2-Hydroxy-3-methylbutyric acid has been detected in most biofluids, including saliva, urine, cerebrospinal fluid, and blood. Within the cell, 2-hydroxy-3-methylbutyric acid is primarily located in the cytoplasm and adiposome. 2-Hydroxy-3-methylbutyric acid exists in all eukaryotes, ranging from yeast to humans. 2-Hydroxy-3-methylbutyric acid participates in a number of enzymatic reactions. In particular, 2-hydroxy-3-methylbutyric acid can be biosynthesized from isovaleric acid. 2-Hydroxy-3-methylbutyric acid can also be converted into 2-hydroxyisovaleryl-CoA. 2-Hydroxy-3-methylbutyric acid has been found to be associated with the diseases known as dihydrolipoamide dehydrogenase deficiency; 2-hydroxy-3-methylbutyric acid has also been linked to the inborn metabolic disorders including maple syrup urine disease.	http://www.hmdb.ca/metabolites/HMDB0000407

2-Hydroxy-3-methylpentanoic acid ; HMDB0000317	2-Hydroxy-3-methyl-pentanoic acid, also known as 2-hydroxy-3-methyl-valerate or (2R,3R)-2-hydroxy-3-methylpentanoate, belongs to the class of organic compounds known as hydroxy fatty acids. These are fatty acids in which the chain bears a hydroxyl group. 2-Hydroxy-3-methyl-pentanoic acid is soluble (in water) and a weakly acidic compound (based on its pKa). 2-Hydroxy-3-methyl-pentanoic acid has been detected in multiple biofluids, such as saliva, feces, and urine. Within the cell, 2-hydroxy-3-methyl-pentanoic acid is primarily located in the cytoplasm and adiposome. 2-Hydroxy-3-methyl-pentanoic acid exists in all eukaryotes, ranging from yeast to humans. 2-Hydroxy-3-methyl-pentanoic acid has been linked to the inborn metabolic disorders including maple syrup urine disease.	http://www.hmdb.ca/metabolites/HMDB0000317
2-Hydroxy-3-methylpentanoic acid ; HMDB00317	2-Hydroxy-3-methyl-pentanoic acid, also known as 2-hydroxy-3-methyl-valerate or (2R,3R)-2-hydroxy-3-methylpentanoate, belongs to the class of organic compounds known as hydroxy fatty acids. These are fatty acids in which the chain bears a hydroxyl group. 2-Hydroxy-3-methyl-pentanoic acid is soluble (in water) and a weakly acidic compound (based on its pKa). 2-Hydroxy-3-methyl-pentanoic acid has been detected in multiple biofluids, such as saliva, feces, and urine. Within the cell, 2-hydroxy-3-methyl-pentanoic acid is primarily located in the cytoplasm and adiposome. 2-Hydroxy-3-methyl-pentanoic acid exists in all eukaryotes, ranging from yeast to humans. 2-Hydroxy-3-methyl-pentanoic acid has been linked to the inborn metabolic disorders including maple syrup urine disease.	http://www.hmdb.ca/metabolites/HMDB0000317

2-Hydroxyadipic acid ; HMDB0000321	2-Hydroxyadipic acid, also known as 2-hydroxyadipate or 2,3,4-trideoxyhexarate, belongs to the class of organic compounds known as medium-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 4 and 12 carbon atoms. 2-Hydroxyadipic acid is soluble (in water) and a weakly acidic compound (based on its pKa). 2-Hydroxyadipic acid has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, 2-hydroxyadipic acid is primarily located in the cytoplasm and adiposome. 2-Hydroxyadipic acid can be biosynthesized from adipic acid. 2-Hydroxyadipic acid is a potentially toxic compound. 2-Hydroxyadipic acid has been linked to several inborn metabolic disorders including 2-ketoadipic acidemia and alpha-aminoadipic aciduria.	http://www.hmdb.ca/metabolites/HMDB0000321

2-Hydroxybutyric acid ; HMDB0000008	(+/-)alpha-hydoxy butyric acid, also known as 2-hydroxybutanoic acid or alpha-hydroxybutyrate, belongs to the class of organic compounds known as alpha hydroxy acids and derivatives. These are organic compounds containing a carboxylic acid substituted with a hydroxyl group on the adjacent carbon (+/-)alpha-hydoxy butyric acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa) (+/-)alpha-hydoxy butyric acid has been found in human prostate tissue, and has also been detected in most biofluids, including blood, feces, sweat, and saliva. Within the cell, (+/-)alpha-hydoxy butyric acid is primarily located in the cytoplasm (+/-)alpha-hydoxy butyric acid exists in all eukaryotes, ranging from yeast to humans. In humans, (+/-)alpha-hydoxy butyric acid is involved in the propanoate metabolism pathway (+/-)alpha-hydoxy butyric acid is also involved in a few metabolic disorders, which include the methylmalonic aciduria due to cobalamin-related disorders pathway, the malonic aciduria pathway, and malonyl-CoA decarboxylase deficiency (+/-)alpha-hydoxy butyric acid has been found to be associated with several diseases known as dihydrolipoamide dehydrogenase deficiency and schizophrenia; (+/-)alpha-hydoxy butyric acid has also been linked to the inborn metabolic disorders including pyruvate dehydrogenase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000008

2-Hydroxybutyric acid ; HMDB00008	(+/-)alpha-hydoxy butyric acid, also known as 2-hydroxybutanoic acid or alpha-hydroxybutyrate, belongs to the class of organic compounds known as alpha hydroxy acids and derivatives. These are organic compounds containing a carboxylic acid substituted with a hydroxyl group on the adjacent carbon (+/-)alpha-hydoxy butyric acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa) (+/-)alpha-hydoxy butyric acid has been found in human prostate tissue, and has also been detected in most biofluids, including blood, feces, sweat, and saliva. Within the cell, (+/-)alpha-hydoxy butyric acid is primarily located in the cytoplasm (+/-)alpha-hydoxy butyric acid exists in all eukaryotes, ranging from yeast to humans. In humans, (+/-)alpha-hydoxy butyric acid is involved in the propanoate metabolism pathway (+/-)alpha-hydoxy butyric acid is also involved in a few metabolic disorders, which include the methylmalonic aciduria due to cobalamin-related disorders pathway, the malonic aciduria pathway, and malonyl-CoA decarboxylase deficiency (+/-)alpha-hydoxy butyric acid has been found to be associated with several diseases known as dihydrolipoamide dehydrogenase deficiency and schizophrenia; (+/-)alpha-hydoxy butyric acid has also been linked to the inborn metabolic disorders including pyruvate dehydrogenase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000008
2-Hydroxydecanoate ; HMDB0094656	2-hydroxydecanoate, also known as alpha-Hydroxycaprate or a-Hydroxycapric acid, is classified as a member of the medium-chain fatty acids. Medium-chain fatty acids are fatty acids with an aliphatic tail that contains between 4 and 12 carbon atoms. 2-hydroxydecanoate is considered to be a practically insoluble (in water) and a weak acidic compound. 2-hydroxydecanoate can be found in feces.	http://www.hmdb.ca/metabolites/HMDB0094656

2-Hydroxyglutarate ; HMDB0059655	2-Hydroxyglutaric acid, also known as alpha-hydroxyglutarate, belongs to the class of organic compounds known as short-chain hydroxy acids and derivatives. These are hydroxy acids with an alkyl chain the contains less than 6 carbon atoms. 2-Hydroxyglutaric acid is soluble (in water) and a weakly acidic compound (based on its pKa). 2-Hydroxyglutaric acid has been found in human brain tissue, and has also been detected in most biofluids, including urine, saliva, blood, and feces. Within the cell, 2-hydroxyglutaric acid is primarily located in the cytoplasm and mitochondria. 2-Hydroxyglutaric acid exists in all eukaryotes, ranging from yeast to humans. In humans, 2-hydroxyglutaric acid is involved in the oncogenic action OF 2-hydroxyglutarate pathway, the oncogenic action OF succinate pathway, and the oncogenic action OF fumarate pathway. 2-Hydroxyglutaric acid is also involved in a couple of metabolic disorders, which include the oncogenic action OF D-2-hydroxyglutarate in hydroxygluaricaciduria pathway and the oncogenic action OF L-2-hydroxyglutarate in hydroxygluaricaciduria pathway. 2-Hydroxyglutaric acid has been found to be associated with several diseases known as eosinophilic esophagitis and deafness, onychodystrophy, osteodystrophy, mental retardation, and seizures syndrome; 2-hydroxyglutaric acid has also been linked to several inborn metabolic disorders including l-2-hydroxyglutaric aciduria, d-2-hydroxyglutaric aciduria, and glutaric aciduria II.	http://www.hmdb.ca/metabolites/HMDB0059655

2-Hydroxyglutarate ; HMDB59655	2-Hydroxyglutaric acid, also known as alpha-hydroxyglutarate, belongs to the class of organic compounds known as short-chain hydroxy acids and derivatives. These are hydroxy acids with an alkyl chain the contains less than 6 carbon atoms. 2-Hydroxyglutaric acid is soluble (in water) and a weakly acidic compound (based on its pKa). 2-Hydroxyglutaric acid has been found in human brain tissue, and has also been detected in most biofluids, including urine, saliva, blood, and feces. Within the cell, 2-hydroxyglutaric acid is primarily located in the cytoplasm and mitochondria. 2-Hydroxyglutaric acid exists in all eukaryotes, ranging from yeast to humans. In humans, 2-hydroxyglutaric acid is involved in the oncogenic action OF 2-hydroxyglutarate pathway, the oncogenic action OF succinate pathway, and the oncogenic action OF fumarate pathway. 2-Hydroxyglutaric acid is also involved in a couple of metabolic disorders, which include the oncogenic action OF D-2-hydroxyglutarate in hydroxygluaricaciduria pathway and the oncogenic action OF L-2-hydroxyglutarate in hydroxygluaricaciduria pathway. 2-Hydroxyglutaric acid has been found to be associated with several diseases known as eosinophilic esophagitis and deafness, onychodystrophy, osteodystrophy, mental retardation, and seizures syndrome; 2-hydroxyglutaric acid has also been linked to several inborn metabolic disorders including l-2-hydroxyglutaric aciduria, d-2-hydroxyglutaric aciduria, and glutaric aciduria II.	http://www.hmdb.ca/metabolites/HMDB0059655

2-Hydroxyhexadecanoic acid ; HMDB0031057	2R-Hydroxypalmitic acid, also known as (R)-2-hydroxypalmitate or (2R)-2-hydroxyhexadecanoate, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. 2R-Hydroxypalmitic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. 2R-Hydroxypalmitic acid has been detected in multiple biofluids, such as feces and urine. Within the cell, 2R-hydroxypalmitic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. 2R-Hydroxypalmitic acid can be converted into (R)-2-hydroxyhexadecanoyl-CoA.	http://www.hmdb.ca/metabolites/HMDB0031057
2-Hydroxyhexadecanoylcarnitine ; HMDB0013337	3-Hydroxy-9Z-octadecenoylcarnitine belongs to the class of organic compounds known as beta hydroxy acids and derivatives. Beta hydroxy acids and derivatives are compounds containing a carboxylic acid substituted with a hydroxyl group on the C3 carbon atom. 3-Hydroxy-9Z-octadecenoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule.	http://www.hmdb.ca/metabolites/HMDB0013337
2-Hydroxyhexadecanoylcarnitine ; HMDB13337	3-Hydroxy-9Z-octadecenoylcarnitine belongs to the class of organic compounds known as beta hydroxy acids and derivatives. Beta hydroxy acids and derivatives are compounds containing a carboxylic acid substituted with a hydroxyl group on the C3 carbon atom. 3-Hydroxy-9Z-octadecenoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule.	http://www.hmdb.ca/metabolites/HMDB0013337

2-Hydroxyibuprofen ; HMDB0060920	2-Hydroxyibuprofen is a metabolite of ibuprofen. Ibuprofen is a nonsteroidal anti-inflammatory drug (NSAID) used for relief of symptoms of arthritis, fever, as an analgesic (pain reliever), especially where there is an inflammatory component, and dysmenorrhea. Ibuprofen is known to have an antiplatelet effect, though it is relatively mild and somewhat short-lived when compared with aspirin or other better-known antiplatelet drugs. (Wikipedia)	http://www.hmdb.ca/metabolites/HMDB0060920
2-Hydroxymyristic acid ; HMDB0002261	2-Hydroxymyristic acid, also known as a-hydroxymyristate or a-hydroxy-N-tetradecylate, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. 2-Hydroxymyristic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. 2-Hydroxymyristic acid has been primarily detected in urine. Within the cell, 2-hydroxymyristic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome.	http://www.hmdb.ca/metabolites/HMDB0002261
2-Hydroxymyristic acid ; HMDB02261	2-Hydroxymyristic acid, also known as a-hydroxymyristate or a-hydroxy-N-tetradecylate, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. 2-Hydroxymyristic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. 2-Hydroxymyristic acid has been primarily detected in urine. Within the cell, 2-hydroxymyristic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome.	http://www.hmdb.ca/metabolites/HMDB0002261

2-Hydroxystearic acid ; HMDB0062549	DL-2-Hydroxy stearic acid, also known as a-hydroxyoctadecanoate or a-hydroxystearate, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. DL-2-Hydroxy stearic acid is a very hydrophobic molecule, practically insoluble (in water), and relatively neutral. DL-2-Hydroxy stearic acid has been detected in multiple biofluids, such as feces and urine. Within the cell, DL-2-hydroxy stearic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. DL-2-Hydroxy stearic acid can be converted into 2-hydroxystearoyl-CoA and N-2-hydroxystearoylsphingosine.	http://www.hmdb.ca/metabolites/HMDB0062549
2-Isopropylmalic acid ; HMDB0000402	2-Isopropyl-malic acid, also known as (2s)-2-isopropylmalate, belongs to the class of organic compounds known as hydroxy fatty acids. These are fatty acids in which the chain bears a hydroxyl group. 2-Isopropyl-malic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). 2-Isopropyl-malic acid has been detected in multiple biofluids, such as saliva, feces, and urine. Within the cell, 2-isopropyl-malic acid is primarily located in the cytoplasm and adiposome. 2-Isopropyl-malic acid exists in all eukaryotes, ranging from yeast to humans. Outside of the human body, 2-isopropyl-malic acid can be found in a number of food items such as celery stalks, potato, winter savory, and agar. This makes 2-isopropyl-malic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000402

2-Ketobutyric acid ; HMDB0000005	3-Methyl pyruvic acid, also known as alpha-ketobutyric acid or 2-oxobutyric acid, belongs to the class of organic compounds known as short-chain keto acids and derivatives. These are keto acids with an alkyl chain the contains less than 6 carbon atoms. 3-Methyl pyruvic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). 3-Methyl pyruvic acid has been primarily detected in saliva, urine, blood, and cerebrospinal fluid. Within the cell, 3-methyl pyruvic acid is primarily located in the cytoplasm. 3-Methyl pyruvic acid exists in all eukaryotes, ranging from yeast to humans. In humans, 3-methyl pyruvic acid is involved in the methionine metabolism pathway, the selenoamino acid metabolism pathway, the glycine and serine metabolism pathway, and the threonine and 2-oxobutanoate degradation pathway. 3-Methyl pyruvic acid is also involved in several metabolic disorders, some of which include S-adenosylhomocysteine (sah) hydrolase deficiency, homocystinuria, cystathionine beta-synthase deficiency, the NON ketotic hyperglycinemia pathway, and the hypermethioninemia pathway. Outside of the human body, 3-methyl pyruvic acid can be found in a number of food items such as dock, common persimmon, nutmeg, and common pea. This makes 3-methyl pyruvic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000005
2-Methylguanosine ; HMDB0005862	2-Methylguanosine, also known as M2G, belongs to the class of organic compounds known as purine nucleosides. Purine nucleosides are compounds comprising a purine base attached to a ribosyl or deoxyribosyl moiety. 2-Methylguanosine is soluble (in water) and a very weakly acidic compound (based on its pKa).	http://www.hmdb.ca/metabolites/HMDB0005862

2-Methylguanosine ; HMDB05862	2-Methylguanosine, also known as M2G, belongs to the class of organic compounds known as purine nucleosides. Purine nucleosides are compounds comprising a purine base attached to a ribosyl or deoxyribosyl moiety. 2-Methylguanosine is soluble (in water) and a very weakly acidic compound (based on its pKa).	http://www.hmdb.ca/metabolites/HMDB0005862
2-Piperidinone ; HMDB0011749	2-Piperidinone, also known as alpha-piperidone or 2-oxo-piperidine, belongs to the class of organic compounds known as piperidinones. Piperidinones are compounds containing a piperidine ring which bears a ketone. 2-Piperidinone exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). 2-Piperidinone has been detected in multiple biofluids, such as feces, saliva, and blood.	http://www.hmdb.ca/metabolites/HMDB0011749
2-trans,4-cis-Decadienoylcarnitine ; HMDB0013325	2-trans,4-cis-Decadienoylcarnitine belongs to the class of organic compounds known as fatty acid esters. These are carboxylic ester derivatives of a fatty acid. 2-trans,4-cis-Decadienoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. 2-trans,4-cis-Decadienoylcarnitine has been primarily detected in urine. Within the cell, 2-trans,4-cis-decadienoylcarnitine is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0013325
2-trans,4-cis-Decadienoylcarnitine ; HMDB13325	2-trans,4-cis-Decadienoylcarnitine belongs to the class of organic compounds known as fatty acid esters. These are carboxylic ester derivatives of a fatty acid. 2-trans,4-cis-Decadienoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. 2-trans,4-cis-Decadienoylcarnitine has been primarily detected in urine. Within the cell, 2-trans,4-cis-decadienoylcarnitine is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0013325

21-Deoxycortisol ; HMDB0004030	21-Deoxycortisol belongs to the class of organic compounds known as gluco/mineralocorticoids, progestogins and derivatives. These are steroids with a structure based on a hydroxylated prostane moiety. 21-Deoxycortisol is considered to be a practically insoluble (in water) and relatively neutral molecule. 21-Deoxycortisol has been found in human hepatic tissue, testicle and endocrine gland tissues, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, 21-deoxycortisol is primarily located in the membrane (predicted from logP) and cytoplasm. 21-Deoxycortisol participates in a number of enzymatic reactions. In particular, 21-Deoxycortisol can be converted into 11b-hydroxyprogesterone; which is catalyzed by the enzyme steroid 17-alpha-hydroxylase/17,20 lyase. In addition, 21-Deoxycortisol can be converted into cortisol through its interaction with the enzyme steroid 21-hydroxylase. In humans, 21-deoxycortisol is involved in the steroidogenesis pathway. 21-Deoxycortisol is also involved in several metabolic disorders, some of which include the apparent mineralocorticoid excess syndrome pathway, 21-hydroxylase deficiency (cyp21), corticosterone methyl oxidase I deficiency (cmo I), and corticosterone methyl oxidase II deficiency - cmo II.	http://www.hmdb.ca/metabolites/HMDB0004030

21-Deoxycortisol ; HMDB04030	21-Deoxycortisol belongs to the class of organic compounds known as gluco/mineralocorticoids, progestogins and derivatives. These are steroids with a structure based on a hydroxylated prostane moiety. 21-Deoxycortisol is considered to be a practically insoluble (in water) and relatively neutral molecule. 21-Deoxycortisol has been found in human hepatic tissue, testicle and endocrine gland tissues, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, 21-deoxycortisol is primarily located in the membrane (predicted from logP) and cytoplasm. 21-Deoxycortisol participates in a number of enzymatic reactions. In particular, 21-Deoxycortisol can be converted into 11b-hydroxyprogesterone; which is catalyzed by the enzyme steroid 17-alpha-hydroxylase/17,20 lyase. In addition, 21-Deoxycortisol can be converted into cortisol through its interaction with the enzyme steroid 21-hydroxylase. In humans, 21-deoxycortisol is involved in the steroidogenesis pathway. 21-Deoxycortisol is also involved in several metabolic disorders, some of which include the apparent mineralocorticoid excess syndrome pathway, 21-hydroxylase deficiency (cyp21), corticosterone methyl oxidase I deficiency (cmo I), and corticosterone methyl oxidase II deficiency - cmo II.	http://www.hmdb.ca/metabolites/HMDB0004030

3 beta-Hydroxy-5-cholestenoate ; HMDB0012453	3 beta-Hydroxy-5-cholestenoate, also known as 3-hcoa or 3-hydroxy-5-cholesten-26-Oic acid, belongs to the class of organic compounds known as monohydroxy bile acids, alcohols and derivatives. These are bile acids, alcohols or any of their derivatives bearing a hydroxyl group. 3 beta-Hydroxy-5-cholestenoate is considered to be a practically insoluble (in water) and relatively neutral molecule. 3 beta-Hydroxy-5-cholestenoate has been found in human hepatic tissue tissue, and has also been primarily detected in urine. Within the cell, 3 beta-hydroxy-5-cholestenoate is primarily located in the membrane (predicted from logP) and cytoplasm. 3 beta-Hydroxy-5-cholestenoate participates in a number of enzymatic reactions. In particular, 3 beta-Hydroxy-5-cholestenoate can be biosynthesized from 27-hydroxycholesterol; which is catalyzed by the enzyme sterol 26-hydroxylase, mitochondrial. In addition, 3 beta-Hydroxy-5-cholestenoate can be converted into 3 beta,7 alpha-dihydroxy-5-cholestenoate through its interaction with the enzyme 25-hydroxycholesterol 7-alpha-hydroxylase. In humans, 3 beta-hydroxy-5-cholestenoate is involved in bile acid biosynthesis pathway, congenital bile acid synthesis defect type III pathway, the cerebrotendinous xanthomatosis (CTX) pathway, and congenital bile acid synthesis defect type II pathway. 3 beta-Hydroxy-5-cholestenoate is also involved in a few metabolic disorders, which include 27-hydroxylase deficiency, the zellweger syndrome pathway, and the familial hypercholanemia (fhca) pathway.	http://www.hmdb.ca/metabolites/HMDB0012453

3, 5-Tetradecadiencarnitine ; HMDB0013331	3-Hydroxy-9Z-octadecenoylcarnitine belongs to the class of organic compounds known as beta hydroxy acids and derivatives. Beta hydroxy acids and derivatives are compounds containing a carboxylic acid substituted with a hydroxyl group on the C3 carbon atom. 3-Hydroxy-9Z-octadecenoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule.	http://www.hmdb.ca/metabolites/HMDB0013331
3, 5-Tetradecadiencarnitine ; HMDB13331	3-Hydroxy-9Z-octadecenoylcarnitine belongs to the class of organic compounds known as beta hydroxy acids and derivatives. Beta hydroxy acids and derivatives are compounds containing a carboxylic acid substituted with a hydroxyl group on the C3 carbon atom. 3-Hydroxy-9Z-octadecenoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule.	http://www.hmdb.ca/metabolites/HMDB0013331
3-(3-Hydroxyphenyl)propanoic acid ; HMDB0000375	3-(3-Hydroxyphenyl)propanoic acid, also known as dihydro-3-coumaric acid or b-(m-hydroxyphenyl)propionate, belongs to the class of organic compounds known as phenylpropanoic acids. Phenylpropanoic acids are compounds with a structure containing a benzene ring conjugated to a propanoic acid. 3-(3-Hydroxyphenyl)propanoic acid is slightly soluble (in water) and a weakly acidic compound (based on its pKa). 3-(3-Hydroxyphenyl)propanoic acid has been detected in multiple biofluids, such as feces, urine, and blood. 3-(3-Hydroxyphenyl)propanoic acid participates in a number of enzymatic reactions. In particular, 3-(3-hydroxyphenyl)propanoic acid can be biosynthesized from propionic acid. 3-(3-Hydroxyphenyl)propanoic acid can also be converted into 3-(m-hydroxyphenyl)propanoyl-CoA.	http://www.hmdb.ca/metabolites/HMDB0000375

3-(3-Hydroxyphenyl)propanoic acid ; HMDB00375	3-(3-Hydroxyphenyl)propanoic acid, also known as dihydro-3-coumaric acid or b-(m-hydroxyphenyl)propionate, belongs to the class of organic compounds known as phenylpropanoic acids. Phenylpropanoic acids are compounds with a structure containing a benzene ring conjugated to a propanoic acid. 3-(3-Hydroxyphenyl)propanoic acid is slightly soluble (in water) and a weakly acidic compound (based on its pKa). 3-(3-Hydroxyphenyl)propanoic acid has been detected in multiple biofluids, such as feces, urine, and blood. 3-(3-Hydroxyphenyl)propanoic acid participates in a number of enzymatic reactions. In particular, 3-(3-hydroxyphenyl)propanoic acid can be biosynthesized from propionic acid. 3-(3-Hydroxyphenyl)propanoic acid can also be converted into 3-(m-hydroxyphenyl)propanoyl-CoA.	http://www.hmdb.ca/metabolites/HMDB0000375
3-Amino-2-piperidone ; HMDB0000323	3-Amino-2-piperidone, also known as cyclo-ornithine or 3-aminopiperidine-2-one, belongs to the class of organic compounds known as alpha amino acid amides. These are amide derivatives of alpha amino acids. 3-Amino-2-piperidone is soluble (in water) and a very weakly acidic compound (based on its pKa). 3-Amino-2-piperidone has been primarily detected in sweat.	http://www.hmdb.ca/metabolites/HMDB0000323

3-Aminoisobutanoic acid ; HMDB0003911	3-Amino-isobutanoic acid, also known as 3-aminoisobutanoate or beta-aminoisobutyric acid, belongs to the class of organic compounds known as beta amino acids and derivatives. These are amino acids having a (-NH2) group attached to the beta carbon atom. 3-Amino-isobutanoic acid is soluble (in water) and a weakly acidic compound (based on its pKa). 3-Amino-isobutanoic acid has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, 3-amino-isobutanoic acid is primarily located in the cytoplasm. 3-Amino-isobutanoic acid exists in all eukaryotes, ranging from yeast to humans. In humans, 3-amino-isobutanoic acid is involved in the pyrimidine metabolism pathway. 3-Amino-isobutanoic acid is also involved in several metabolic disorders, some of which include Beta ureidopropionase deficiency, UMP synthase deficiency (orotic aciduria), the mngie (mitochondrial neurogastrointestinal encephalopathy) pathway, and dihydropyrimidinase deficiency.	http://www.hmdb.ca/metabolites/HMDB0003911
3-Carboxy-4-methyl-5-propyl-2-furanpropionic acid ; HMDB0061112	, also known as CMPF or u(3,3), belongs to the class of organic compounds known as furanoid fatty acids. These are fatty acids containing a 5-alkylfuran-2-alkanoic acid. Thus, is considered to be a fatty acid lipid molecule. is considered to be a practically insoluble (in water) and relatively neutral molecule. has been detected in multiple biofluids, such as feces, blood, and urine. Within the cell, is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0061112

3-Carboxy-4-methyl-5-propyl-2-furanpropionic acid ; HMDB61112	, also known as CMPF or u(3,3), belongs to the class of organic compounds known as furanoid fatty acids. These are fatty acids containing a 5-alkylfuran-2-alkanoic acid. Thus, is considered to be a fatty acid lipid molecule. is considered to be a practically insoluble (in water) and relatively neutral molecule. has been detected in multiple biofluids, such as feces, blood, and urine. Within the cell, is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0061112
3-Hydroxy-11Z-octadecenoylcarnitine ; HMDB0013339	3-Hydroxy-9Z-octadecenoylcarnitine belongs to the class of organic compounds known as beta hydroxy acids and derivatives. Beta hydroxy acids and derivatives are compounds containing a carboxylic acid substituted with a hydroxyl group on the C3 carbon atom. 3-Hydroxy-9Z-octadecenoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule.	http://www.hmdb.ca/metabolites/HMDB0013339
3-Hydroxy-11Z-octadecenoylcarnitine ; HMDB13339	3-Hydroxy-9Z-octadecenoylcarnitine belongs to the class of organic compounds known as beta hydroxy acids and derivatives. Beta hydroxy acids and derivatives are compounds containing a carboxylic acid substituted with a hydroxyl group on the C3 carbon atom. 3-Hydroxy-9Z-octadecenoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule.	http://www.hmdb.ca/metabolites/HMDB0013339

3-Hydroxyanthranilic acid ; HMDB0001476	3-Hydroxyanthranilic acid, also known as 2-amino-3-hydroxy-benzoate or 3-ohaa, belongs to the class of organic compounds known as hydroxybenzoic acid derivatives. Hydroxybenzoic acid derivatives are compounds containing a hydroxybenzoic acid (or a derivative), which is a benzene ring bearing a carboxyl and a hydroxyl groups. 3-Hydroxyanthranilic acid exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). 3-Hydroxyanthranilic acid has been found in human epidermis and bladder tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, 3-hydroxyanthranilic acid is primarily located in the cytoplasm. 3-Hydroxyanthranilic acid exists in all eukaryotes, ranging from yeast to humans. 3-Hydroxyanthranilic acid participates in a number of enzymatic reactions. In particular, 3-Hydroxyanthranilic acid and L-alanine can be biosynthesized from L-3-hydroxykynurenine; which is catalyzed by the enzyme kynureninase. Furthermore, 3-Hydroxyanthranilic acid can be converted into cinnavalininate through its interaction with the enzyme catalase. Furthermore, L-Alanine and 3-hydroxyanthranilic acid can be biosynthesized from 3-hydroxy-L-kynurenine through its interaction with the enzyme kynureninase. Furthermore, 3-Hydroxyanthranilic acid can be converted into 2-amino-3-carboxymuconic acid semialdehyde; which is catalyzed by the enzyme 3-hydroxyanthranilate 3,4-dioxygenase. Furthermore, 3-Hydroxyanthranilic acid can be converted into 2-amino-3-carboxymuconic acid semialdehyde through the action of the enzyme 3-hydroxyanthranilate 3,4-dioxygenase. Finally, L-Alanine and 3-hydroxyanthranilic acid can be biosynthesized from 3-hydroxy-L-kynurenine; which is mediated by the enzyme kynureninase. In humans, 3-hydroxyanthranilic acid is involved in the tryptophan metabolism	http://www.hmdb.ca/metabolites/HMDB0001476

	pathway.	

3-Hydroxyanthranilic acid ; HMDB01476	3-Hydroxyanthranilic acid, also known as 2-amino-3-hydroxy-benzoate or 3-ohaa, belongs to the class of organic compounds known as hydroxybenzoic acid derivatives. Hydroxybenzoic acid derivatives are compounds containing a hydroxybenzoic acid (or a derivative), which is a benzene ring bearing a carboxyl and a hydroxyl groups. 3-Hydroxyanthranilic acid exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). 3-Hydroxyanthranilic acid has been found in human epidermis and bladder tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, 3-hydroxyanthranilic acid is primarily located in the cytoplasm. 3-Hydroxyanthranilic acid exists in all eukaryotes, ranging from yeast to humans. 3-Hydroxyanthranilic acid participates in a number of enzymatic reactions. In particular, 3-Hydroxyanthranilic acid and L-alanine can be biosynthesized from L-3-hydroxykynurenine; which is catalyzed by the enzyme kynureninase. Furthermore, 3-Hydroxyanthranilic acid can be converted into cinnavalininate through its interaction with the enzyme catalase. Furthermore, L-Alanine and 3-hydroxyanthranilic acid can be biosynthesized from 3-hydroxy-L-kynurenine through its interaction with the enzyme kynureninase. Furthermore, 3-Hydroxyanthranilic acid can be converted into 2-amino-3-carboxymuconic acid semialdehyde; which is catalyzed by the enzyme 3-hydroxyanthranilate 3,4-dioxygenase. Furthermore, 3-Hydroxyanthranilic acid can be converted into 2-amino-3-carboxymuconic acid semialdehyde through the action of the enzyme 3-hydroxyanthranilate 3,4-dioxygenase. Finally, L-Alanine and 3-hydroxyanthranilic acid can be biosynthesized from 3-hydroxy-L-kynurenine; which is mediated by the enzyme kynureninase. In humans, 3-hydroxyanthranilic acid is involved in the tryptophan metabolism	http://www.hmdb.ca/metabolites/HMDB0001476

	pathway.	
3-Hydroxycapric acid ; HMDB0002203	, also known as myrmicacin or 3-hydroxycaprate, belongs to the class of organic compounds known as medium-chain hydroxy acids and derivatives. These are hydroxy acids with a 6 to 12 carbon atoms long side chain. Thus, is considered to be a fatty acid lipid molecule. is slightly soluble (in water) and a weakly acidic compound (based on its pKa). has been detected in multiple biofluids, such as feces and blood. can be biosynthesized from decanoic acid.	http://www.hmdb.ca/metabolites/HMDB0002203
3-Hydroxycapric acid ; HMDB02203	, also known as myrmicacin or 3-hydroxycaprate, belongs to the class of organic compounds known as medium-chain hydroxy acids and derivatives. These are hydroxy acids with a 6 to 12 carbon atoms long side chain. Thus, is considered to be a fatty acid lipid molecule. is slightly soluble (in water) and a weakly acidic compound (based on its pKa). has been detected in multiple biofluids, such as feces and blood. can be biosynthesized from decanoic acid.	http://www.hmdb.ca/metabolites/HMDB0002203
3-Hydroxydodecanoic acid ; HMDB0000387	Beta-Hydroxylauric acid, also known as 3-hydroxy-dodecanoate or 3-OH dodecanoic acid, belongs to the class of organic compounds known as medium-chain hydroxy acids and derivatives. These are hydroxy acids with a 6 to 12 carbon atoms long side chain. Beta-Hydroxylauric acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Beta-Hydroxylauric acid has been detected in multiple biofluids, such as feces and blood. Within the cell, Beta-hydroxylauric acid is primarily located in the membrane (predicted from logP). Beta-Hydroxylauric acid can be biosynthesized from dodecanoic acid.	http://www.hmdb.ca/metabolites/HMDB0000387

3-hydroxyhexanoic acid ; HMDB0061652	DL-3-Hydroxy caproic acid, also known as 3-hydroxycaproate, belongs to the class of organic compounds known as medium-chain hydroxy acids and derivatives. These are hydroxy acids with a 6 to 12 carbon atoms long side chain. DL-3-Hydroxy caproic acid is soluble (in water) and a weakly acidic compound (based on its pKa). DL-3-Hydroxy caproic acid can be converted into ethyl 3-hydroxyhexanoate.	http://www.hmdb.ca/metabolites/HMDB0061652
3-Hydroxyhippuric acid ; HMDB0006116	3-Hydroxyhippuric acid, also known as 3-hydroxybenzoylglycine or 3-hydroxyhippate, belongs to the class of organic compounds known as hippuric acids. Hippuric acids are compounds containing hippuric acid, which consists of a of a benzoyl group linked to the N-terminal of a glycine. 3-Hydroxyhippuric acid exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). 3-Hydroxyhippuric acid has been detected in multiple biofluids, such as urine and blood. Within the cell, 3-hydroxyhippuric acid is primarily located in the cytoplasm. 3-Hydroxyhippuric acid can be biosynthesized from N-benzoylglycine.	http://www.hmdb.ca/metabolites/HMDB0006116

3-Hydroxyisovaleric acid ; HMDB0000754	3-Hydroxy-isovaleric acid, also known as HMB-D6 or 3-hydroxy-3-methylbutyrate, belongs to the class of organic compounds known as hydroxy fatty acids. These are fatty acids in which the chain bears a hydroxyl group. 3-Hydroxy-isovaleric acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). 3-Hydroxy-isovaleric acid has been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, 3-hydroxy-isovaleric acid is primarily located in the cytoplasm and adiposome. 3-Hydroxy-isovaleric acid participates in a number of enzymatic reactions. In particular, 3-hydroxy-isovaleric acid can be biosynthesized from isovaleric acid and butyric acid. 3-Hydroxy-isovaleric acid can also be converted into 3-hydroxyisovalerylcarnitine and 3-hydroxyisovaleryl-CoA. 3-Hydroxy-isovaleric acid is a potentially toxic compound. 3-Hydroxy-isovaleric acid has been found to be associated with several diseases known as 3-methylglutaconic aciduria type VI and lung cancer; 3-hydroxy-isovaleric acid has also been linked to several inborn metabolic disorders including biotinidase deficiency, 3-hydroxy-3-methylglutaryl-CoA lyase deficiency, and 3-methylglutaconic aciduria type I.	http://www.hmdb.ca/metabolites/HMDB0000754

3-Hydroxymethylglutaric acid ; HMDB0000355	3-Hydroxymethylglutaric acid, also known as meglutol or dicrotalic acid, belongs to the class of organic compounds known as hydroxy fatty acids. These are fatty acids in which the chain bears a hydroxyl group. 3-Hydroxymethylglutaric acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). 3-Hydroxymethylglutaric acid has been detected in multiple biofluids, such as saliva and urine. Within the cell, 3-hydroxymethylglutaric acid is primarily located in the cytoplasm and adiposome. 3-Hydroxymethylglutaric acid participates in a number of enzymatic reactions. In particular, 3-hydroxymethylglutaric acid can be biosynthesized from glutaric acid. 3-Hydroxymethylglutaric acid is also a parent compound for other transformation products, including but not limited to, viscumneoside vii, viscumneoside iv, and yanuthone D. Outside of the human body, 3-hydroxymethylglutaric acid can be found in flaxseed. This makes 3-hydroxymethylglutaric acid a potential biomarker for the consumption of this food product. 3-Hydroxymethylglutaric acid is a potentially toxic compound. 3-Hydroxymethylglutaric acid has been linked to the inborn metabolic disorders including 3-hydroxy-3-methylglutaryl-CoA lyase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000355
3-Hydroxymyristate ; HMDB0094672	, also known as 14:0(3-oh), belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Thus, is considered to be a fatty acid lipid molecule. is considered to be a practically insoluble (in water) and relatively neutral molecule. has been primarily detected in urine. Within the cell, is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. participates in a number of enzymatic reactions. In particular, can be biosynthesized from tetradecanoic acid. can also be converted into 3-hydroxytetradecanoyl-CoA.	http://www.hmdb.ca/metabolites/HMDB0094672

3-Hydroxyoctanoic acid ; HMDB0001954	3-Hydroxy caprylic acid, also known as 3-hydroxy-octanoate or 3-OH octanoic acid, belongs to the class of organic compounds known as medium-chain hydroxy acids and derivatives. These are hydroxy acids with a 6 to 12 carbon atoms long side chain. 3-Hydroxy caprylic acid is soluble (in water) and a weakly acidic compound (based on its pKa). 3-Hydroxy caprylic acid participates in a number of enzymatic reactions. In particular, 3-hydroxy caprylic acid can be biosynthesized from octanoic acid. 3-Hydroxy caprylic acid can also be converted into 3-hydroxyoctanoyl-CoA.	http://www.hmdb.ca/metabolites/HMDB0001954
3-Hydroxyoctanoic acid ; HMDB01954	3-Hydroxy caprylic acid, also known as 3-hydroxy-octanoate or 3-OH octanoic acid, belongs to the class of organic compounds known as medium-chain hydroxy acids and derivatives. These are hydroxy acids with a 6 to 12 carbon atoms long side chain. 3-Hydroxy caprylic acid is soluble (in water) and a weakly acidic compound (based on its pKa). 3-Hydroxy caprylic acid participates in a number of enzymatic reactions. In particular, 3-hydroxy caprylic acid can be biosynthesized from octanoic acid. 3-Hydroxy caprylic acid can also be converted into 3-hydroxyoctanoyl-CoA.	http://www.hmdb.ca/metabolites/HMDB0001954
3-Hydroxysebacic acid ; HMDB0000350	3-Hydroxy-sebacic acid, also known as 3-hydroxy-decanedioate, belongs to the class of organic compounds known as medium-chain hydroxy acids and derivatives. These are hydroxy acids with a 6 to 12 carbon atoms long side chain. 3-Hydroxy-sebacic acid is slightly soluble (in water) and a weakly acidic compound (based on its pKa). 3-Hydroxy-sebacic acid has been detected in multiple biofluids, such as urine and blood. 3-Hydroxy-sebacic acid can be biosynthesized from sebacic acid. 3-Hydroxy-sebacic acid has been linked to the inborn metabolic disorders including medium chain acyl-CoA dehydrogenase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000350

3-Indolebutyric acid ; HMDB0002096	3-Indolebutyric acid, also known as indolebutyrate or 1H-indole-3-butanoate, belongs to the class of organic compounds known as 3-alkylindoles. 3-alkylindoles are compounds containing an indole moiety that carries an alkyl chain at the 3-position. 3-Indolebutyric acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. 3-Indolebutyric acid has been primarily detected in blood. Within the cell, 3-indolebutyric acid is primarily located in the membrane (predicted from logP). 3-Indolebutyric acid can be biosynthesized from butyric acid.	http://www.hmdb.ca/metabolites/HMDB0002096
3-Methoxytyrosine ; HMDB0001434	3-Methoxytyrosine, also known as 3-O-methyldopa or vanilalanine, belongs to the class of organic compounds known as tyrosine and derivatives. Tyrosine and derivatives are compounds containing tyrosine or a derivative thereof resulting from reaction of tyrosine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. 3-Methoxytyrosine is slightly soluble (in water) and a moderately acidic compound (based on its pKa). 3-Methoxytyrosine has been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid. 3-Methoxytyrosine has been found to be associated with several diseases known as epilepsy, early-onset, vitamin b6-dependent and pyridoxamine 5-prime-phosphate oxidase deficiency; 3-methoxytyrosine has also been linked to the inborn metabolic disorders including aromatic l-amino acid decarboxylase deficiency.	http://www.hmdb.ca/metabolites/HMDB0001434

3-Methyl-2-oxovaleric acid ; HMDB0000491	3-Methyl-2-oxovaleric acid, also known as 3-methyl-2-oxopentanoate or 2-oxo-3-methylvalerate, belongs to the class of organic compounds known as short-chain keto acids and derivatives. These are keto acids with an alkyl chain the contains less than 6 carbon atoms. 3-Methyl-2-oxovaleric acid is slightly soluble (in water) and a weakly acidic compound (based on its pKa). 3-Methyl-2-oxovaleric acid has been found in human prostate tissue, and has also been detected in most biofluids, including saliva, blood, feces, and cerebrospinal fluid. Within the cell, 3-methyl-2-oxovaleric acid is primarily located in the cytoplasm. 3-Methyl-2-oxovaleric acid participates in a number of enzymatic reactions. In particular, 3-Methyl-2-oxovaleric acid and L-glutamic acid can be biosynthesized from L-isoleucine and oxoglutaric acid; which is catalyzed by the enzyme branched-chain-amino-acid aminotransferase, cytosolic. In addition, 3-Methyl-2-oxovaleric acid and thiamine pyrophosphate can be converted into 2-methyl-1-hydroxypropyl-THPP; which is mediated by the enzyme 2-oxoisovalerate dehydrogenase. In humans, 3-methyl-2-oxovaleric acid is involved in the valine, leucine and isoleucine degradation pathway. 3-Methyl-2-oxovaleric acid is also involved in several metabolic disorders, some of which include Beta-ketothiolase deficiency, the isovaleric acidemia pathway, 3-hydroxyisobutyric acid dehydrogenase deficiency, and 3-hydroxy-3-methylglutaryl-CoA lyase deficiency. 3-Methyl-2-oxovaleric acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000491

3-Methyl-2-oxovaleric acid ; HMDB00491	3-Methyl-2-oxovaleric acid, also known as 3-methyl-2-oxopentanoate or 2-oxo-3-methylvalerate, belongs to the class of organic compounds known as short-chain keto acids and derivatives. These are keto acids with an alkyl chain the contains less than 6 carbon atoms. 3-Methyl-2-oxovaleric acid is slightly soluble (in water) and a weakly acidic compound (based on its pKa). 3-Methyl-2-oxovaleric acid has been found in human prostate tissue, and has also been detected in most biofluids, including saliva, blood, feces, and cerebrospinal fluid. Within the cell, 3-methyl-2-oxovaleric acid is primarily located in the cytoplasm. 3-Methyl-2-oxovaleric acid participates in a number of enzymatic reactions. In particular, 3-Methyl-2-oxovaleric acid and L-glutamic acid can be biosynthesized from L-isoleucine and oxoglutaric acid; which is catalyzed by the enzyme branched-chain-amino-acid aminotransferase, cytosolic. In addition, 3-Methyl-2-oxovaleric acid and thiamine pyrophosphate can be converted into 2-methyl-1-hydroxypropyl-THPP; which is mediated by the enzyme 2-oxoisovalerate dehydrogenase. In humans, 3-methyl-2-oxovaleric acid is involved in the valine, leucine and isoleucine degradation pathway. 3-Methyl-2-oxovaleric acid is also involved in several metabolic disorders, some of which include Beta-ketothiolase deficiency, the isovaleric acidemia pathway, 3-hydroxyisobutyric acid dehydrogenase deficiency, and 3-hydroxy-3-methylglutaryl-CoA lyase deficiency. 3-Methyl-2-oxovaleric acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000491

3-Methyladipic acid ; HMDB0000555	3-Methyladipic acid, also known as 3-methyladipate, belongs to the class of organic compounds known as medium-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 4 and 12 carbon atoms. 3-Methyladipic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). 3-Methyladipic acid has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, 3-methyladipic acid is primarily located in the cytoplasm and adiposome.	http://www.hmdb.ca/metabolites/HMDB0000555
3-Methyladipic acid ; HMDB00555	3-Methyladipic acid, also known as 3-methyladipate, belongs to the class of organic compounds known as medium-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 4 and 12 carbon atoms. 3-Methyladipic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). 3-Methyladipic acid has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, 3-methyladipic acid is primarily located in the cytoplasm and adiposome.	http://www.hmdb.ca/metabolites/HMDB0000555

3-Methylglutaconic acid ; HMDB0000522	3E-Methylglutaconic acid, also known as 3E-methylglutaconate or 3-methyl-2-pentenedioic acid, belongs to the class of organic compounds known as methyl-branched fatty acids. These are fatty acids with an acyl chain that has a methyl branch. Usually, they are saturated and contain only one or more methyl group. However, branches other than methyl may be present. 3E-Methylglutaconic acid is slightly soluble (in water) and a weakly acidic compound (based on its pKa). 3E-Methylglutaconic acid has been primarily detected in urine. Within the cell, 3E-methylglutaconic acid is primarily located in the cytoplasm and adiposome. 3E-Methylglutaconic acid participates in a number of enzymatic reactions. In particular, 3E-methylglutaconic acid can be biosynthesized from (e)-glutaconic acid. 3E-Methylglutaconic acid can also be converted into trans-3-methylglutaconyl-CoA. 3E-Methylglutaconic acid is a potentially toxic compound. 3E-Methylglutaconic acid has been found to be associated with several diseases known as 3-methylglutaconic aciduria type VI and 3-methylglutaconic aciduria type VII; 3e-methylglutaconic acid has also been linked to several inborn metabolic disorders including 3-hydroxy-3-methylglutaryl-CoA lyase deficiency, 3-methylglutaconic aciduria type ii, x-linked, and 3-methylglutaconic aciduria type I.	http://www.hmdb.ca/metabolites/HMDB0000522

3-Methylhistidine ; HMDB0000479	N(pros)-Methyl-L-histidine, also known as 3-methylhistidine, belongs to the class of organic compounds known as histidine and derivatives. Histidine and derivatives are compounds containing cysteine or a derivative thereof resulting from reaction of cysteine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. N(pros)-Methyl-L-histidine is slightly soluble (in water) and a moderately acidic compound (based on its pKa). N(pros)-Methyl-L-histidine has been found in human prostate, muscle and skeletal muscle tissues, and has also been detected in most biofluids, including cerebrospinal fluid, blood, saliva, and urine. Within the cell, N(pros)-methyl-L-histidine is primarily located in the cytoplasm. N(pros)-Methyl-L-histidine exists in all eukaryotes, ranging from yeast to humans. In humans, N(pros)-methyl-L-histidine is involved in the methylhistidine metabolism pathway, the Beta-alanine metabolism pathway, and the histidine metabolism pathway. N(pros)-Methyl-L-histidine is also involved in several metabolic disorders, some of which include gaba-transaminase deficiency, the carnosinuria, carnosinemia pathway, the histidinemia pathway, and ureidopropionase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000479

3-Methylhistidine ; HMDB00479	N(pros)-Methyl-L-histidine, also known as 3-methylhistidine, belongs to the class of organic compounds known as histidine and derivatives. Histidine and derivatives are compounds containing cysteine or a derivative thereof resulting from reaction of cysteine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. N(pros)-Methyl-L-histidine is slightly soluble (in water) and a moderately acidic compound (based on its pKa). N(pros)-Methyl-L-histidine has been found in human prostate, muscle and skeletal muscle tissues, and has also been detected in most biofluids, including cerebrospinal fluid, blood, saliva, and urine. Within the cell, N(pros)-methyl-L-histidine is primarily located in the cytoplasm. N(pros)-Methyl-L-histidine exists in all eukaryotes, ranging from yeast to humans. In humans, N(pros)-methyl-L-histidine is involved in the methylhistidine metabolism pathway, the Beta-alanine metabolism pathway, and the histidine metabolism pathway. N(pros)-Methyl-L-histidine is also involved in several metabolic disorders, some of which include gaba-transaminase deficiency, the carnosinuria, carnosinemia pathway, the histidinemia pathway, and ureidopropionase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000479
3-Methylxanthine ; HMDB0001886	3-Methylxanthine, also known as 3 MX or purine analog, belongs to the class of organic compounds known as xanthines. These are purine derivatives with a ketone group conjugated at carbons 2 and 6 of the purine moiety. 3-Methylxanthine exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). 3-Methylxanthine has been found in human liver and kidney tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, 3-methylxanthine is primarily located in the cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0001886

3-Methylxanthine ; HMDB01886	3-Methylxanthine, also known as 3 MX or purine analog, belongs to the class of organic compounds known as xanthines. These are purine derivatives with a ketone group conjugated at carbons 2 and 6 of the purine moiety. 3-Methylxanthine exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). 3-Methylxanthine has been found in human liver and kidney tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, 3-methylxanthine is primarily located in the cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0001886
3-Oxocholic acid ; HMDB0000502	3-Oxocholic acid, also known as 3-dehydrocholate or 3-oxocholate, belongs to the class of organic compounds known as dihydroxy bile acids, alcohols and derivatives. Dihydroxy bile acids, alcohols and derivatives are compounds containing or derived from a bile acid or alcohol, and which bears exactly two carboxylic acid groups. 3-Oxocholic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. 3-Oxocholic acid has been found throughout all human tissues, and has also been detected in multiple biofluids, such as feces and urine. Within the cell, 3-oxocholic acid is primarily located in the membrane (predicted from logP) and cytoplasm. 3-Oxocholic acid can be converted into 3-oxocholoyl-CoA.	http://www.hmdb.ca/metabolites/HMDB0000502

3-Phosphoglyceric acid ; HMDB0000807	3-Phosphoglyceric acid, also known as glycerate 3-phosphate or 3-PG, belongs to the class of organic compounds known as sugar acids and derivatives. Sugar acids and derivatives are compounds containing a saccharide unit which bears a carboxylic acid group. 3-Phosphoglyceric acid is soluble (in water) and a moderately acidic compound (based on its pKa). 3-Phosphoglyceric acid has been found in human prostate tissue, and has also been detected in multiple biofluids, such as saliva and blood. Within the cell, 3-phosphoglyceric acid is primarily located in the cytoplasm and mitochondria. 3-Phosphoglyceric acid exists in all eukaryotes, ranging from yeast to humans. 3-Phosphoglyceric acid participates in a number of enzymatic reactions. In particular, 3-Phosphoglyceric acid can be biosynthesized from glyceric acid through the action of the enzyme glycerate kinase. Furthermore, 3-Phosphoglyceric acid can be converted into phosphohydroxypyruvic acid through the action of the enzyme D-3-phosphoglycerate dehydrogenase. Finally, 3-Phosphoglyceric acid can be converted into glyceric acid; which is catalyzed by the enzyme glycerate kinase. In humans, 3-phosphoglyceric acid is involved in the glycine and serine metabolism pathway, the triosephosphate isomerase pathway, the D-glyceric acidura pathway, and the starch and sucrose metabolism pathway. 3-Phosphoglyceric acid is also involved in several metabolic disorders, some of which include sucrase-isomaltase deficiency, the hyperglycinemia, non-ketotic pathway, cancer (via the Warburg effect), and glycerol kinase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000807

3-Phosphoglyceric acid ; HMDB00807	3-Phosphoglyceric acid, also known as glycerate 3-phosphate or 3-PG, belongs to the class of organic compounds known as sugar acids and derivatives. Sugar acids and derivatives are compounds containing a saccharide unit which bears a carboxylic acid group. 3-Phosphoglyceric acid is soluble (in water) and a moderately acidic compound (based on its pKa). 3-Phosphoglyceric acid has been found in human prostate tissue, and has also been detected in multiple biofluids, such as saliva and blood. Within the cell, 3-phosphoglyceric acid is primarily located in the cytoplasm and mitochondria. 3-Phosphoglyceric acid exists in all eukaryotes, ranging from yeast to humans. 3-Phosphoglyceric acid participates in a number of enzymatic reactions. In particular, 3-Phosphoglyceric acid can be biosynthesized from glyceric acid through the action of the enzyme glycerate kinase. Furthermore, 3-Phosphoglyceric acid can be converted into phosphohydroxypyruvic acid through the action of the enzyme D-3-phosphoglycerate dehydrogenase. Finally, 3-Phosphoglyceric acid can be converted into glyceric acid; which is catalyzed by the enzyme glycerate kinase. In humans, 3-phosphoglyceric acid is involved in the glycine and serine metabolism pathway, the triosephosphate isomerase pathway, the D-glyceric acidura pathway, and the starch and sucrose metabolism pathway. 3-Phosphoglyceric acid is also involved in several metabolic disorders, some of which include sucrase-isomaltase deficiency, the hyperglycinemia, non-ketotic pathway, cancer (via the Warburg effect), and glycerol kinase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000807

3-Sulfinoalanine ; HMDB0000996	3-Sulfinoalanine, also known as cysteine-S-dioxide or cysteine sulfinate, belongs to the class of organic compounds known as l-alpha-amino acids. These are alpha amino acids which have the L-configuration of the alpha-carbon atom. 3-Sulfinoalanine is soluble (in water) and a moderately acidic compound (based on its pKa). 3-Sulfinoalanine has been detected in multiple biofluids, such as blood and cerebrospinal fluid. Within the cell, 3-sulfinoalanine is primarily located in the mitochondria. 3-Sulfinoalanine exists in all eukaryotes, ranging from yeast to humans. 3-Sulfinoalanine participates in a number of enzymatic reactions. In particular, 3-Sulfinoalanine can be biosynthesized from L-cysteine through its interaction with the enzyme cysteine dioxygenase type 1. Furthermore, 3-Sulfinoalanine and oxoglutaric acid can be converted into 3-sulfinylpyruvic acid and L-glutamic acid; which is catalyzed by the enzyme aspartate aminotransferase, cytoplasmic. Furthermore, 3-Sulfinoalanine can be biosynthesized from L-cysteine through the action of the enzyme cysteine dioxygenase type 1. Finally, 3-Sulfinoalanine can be converted into hypotaurine through its interaction with the enzyme cysteine sulfinic acid decarboxylase. In humans, 3-sulfinoalanine is involved in the cystinosis, ocular nonnephropathic pathway, the taurine and hypotaurine metabolism pathway, and the cysteine metabolism pathway. 3-Sulfinoalanine is also involved in the metabolic disorder called the Beta-mercaptolactate-cysteine disulfiduria pathway.	http://www.hmdb.ca/metabolites/HMDB0000996

4,5-Dihydroorotic acid ; HMDB0000528	4,5-Dihydroorotic acid, also known as hydroorotate, belongs to the class of organic compounds known as alpha amino acids and derivatives. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon), or a derivative thereof. 4,5-Dihydroorotic acid is soluble (in water) and a weakly acidic compound (based on its pKa). 4,5-Dihydroorotic acid has been found in human prostate tissue. Within the cell, 4,5-dihydroorotic acid is primarily located in the cytoplasm. 4,5-Dihydroorotic acid exists in all eukaryotes, ranging from yeast to humans. 4,5-Dihydroorotic acid participates in a number of enzymatic reactions. In particular, 4,5-Dihydroorotic acid can be biosynthesized from N-carbamoyl-L-aspartate through its interaction with the enzyme dihydroorotase. In addition, 4,5-Dihydroorotic acid and ubiquinone-1 can be converted into ubiquinol-1 and orotic acid; which is mediated by the enzyme dihydroorotate dehydrogenase, type 2.	http://www.hmdb.ca/metabolites/HMDB0000528
4-Acetamidobutanoic acid ; HMDB0003681	4-Acetamidobutanoic acid, also known as N4-acetylaminobutanoate or N-acetyl-4-aminobutyric acid, belongs to the class of organic compounds known as gamma amino acids and derivatives. These are amino acids having a (-NH2) group attached to the gamma carbon atom. 4-Acetamidobutanoic acid is soluble (in water) and a weakly acidic compound (based on its pKa). 4-Acetamidobutanoic acid has been found in human prostate tissue, and has also been detected in multiple biofluids, such as feces, urine, and blood. 4-Acetamidobutanoic acid exists in all eukaryotes, ranging from yeast to humans. Outside of the human body, 4-acetamidobutanoic acid can be found in a number of food items such as cocoa bean, yellow zucchini, mustard spinach, and ginkgo nuts. This makes 4-acetamidobutanoic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0003681

4-Acetamidobutanoic acid ; HMDB03681	4-Acetamidobutanoic acid, also known as N4-acetylaminobutanoate or N-acetyl-4-aminobutyric acid, belongs to the class of organic compounds known as gamma amino acids and derivatives. These are amino acids having a (-NH2) group attached to the gamma carbon atom. 4-Acetamidobutanoic acid is soluble (in water) and a weakly acidic compound (based on its pKa). 4-Acetamidobutanoic acid has been found in human prostate tissue, and has also been detected in multiple biofluids, such as feces, urine, and blood. 4-Acetamidobutanoic acid exists in all eukaryotes, ranging from yeast to humans. Outside of the human body, 4-acetamidobutanoic acid can be found in a number of food items such as cocoa bean, yellow zucchini, mustard spinach, and ginkgo nuts. This makes 4-acetamidobutanoic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0003681
4-ethylphenylsulfate ; HMDB0062551	4-Ethylphenylsulfate belongs to the class of organic compounds known as phenylsulfates. Phenylsulfates are compounds containing a sulfuric acid group conjugated to a phenyl group. 4-Ethylphenylsulfate has been primarily detected in blood. 4-Ethylphenylsulfate can be biosynthesized from 4-ethylphenol.	http://www.hmdb.ca/metabolites/HMDB0062551

4-Guanidinobutanoic acid ; HMDB0003464	4-Guanidinobutanoic acid, also known as gamma-guanidinobutyrate or 4-(carbamimidamido)butanoate, belongs to the class of organic compounds known as gamma amino acids and derivatives. These are amino acids having a (-NH2) group attached to the gamma carbon atom. 4-Guanidinobutanoic acid is slightly soluble (in water) and a weakly acidic compound (based on its pKa). 4-Guanidinobutanoic acid has been found in human prostate tissue, and has also been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid. Within the cell, 4-guanidinobutanoic acid is primarily located in the cytoplasm. 4-Guanidinobutanoic acid exists in all eukaryotes, ranging from yeast to humans. Outside of the human body, 4-guanidinobutanoic acid can be found in apple, french plantain, and loquat. This makes 4-guanidinobutanoic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0003464

4-Hydroxy-2-oxoglutaric acid ; HMDB0002070	4-Hydroxy-2-oxoglutaric acid, also known as 2-keto-4-hydroxyglutarate or 4-hydroxy-2-ketoglutarate, belongs to the class of organic compounds known as gamma-keto acids and derivatives. These are organic compounds containing an aldehyde substituted with a keto group on the C4 carbon atom. 4-Hydroxy-2-oxoglutaric acid is soluble (in water) and a moderately acidic compound (based on its pKa). Within the cell, 4-hydroxy-2-oxoglutaric acid is primarily located in the mitochondria. 4-Hydroxy-2-oxoglutaric acid exists in all eukaryotes, ranging from yeast to humans. 4-Hydroxy-2-oxoglutaric acid and L-aspartic acid can be biosynthesized from 4-hydroxy-L-glutamic acid and oxalacetic acid; which is catalyzed by the enzyme aspartate aminotransferase, cytoplasmic. In humans, 4-hydroxy-2-oxoglutaric acid is involved in the arginine and proline metabolism pathway. 4-Hydroxy-2-oxoglutaric acid is also involved in several metabolic disorders, some of which include the hyperprolinemia type II pathway, L-arginine:glycine amidinotransferase deficiency, ornithine aminotransferase deficiency (oat deficiency), and creatine deficiency, guanidinoacetate methyltransferase deficiency.	http://www.hmdb.ca/metabolites/HMDB0002070
4-Hydroxyhippuric acid ; HMDB0013678	4-Hydroxyhippuric acid, also known as 4-hydroxybenzoylglycine or 4-hydroxyhippate, belongs to the class of organic compounds known as hippuric acids. Hippuric acids are compounds containing hippuric acid, which consists of a of a benzoyl group linked to the N-terminal of a glycine. 4-Hydroxyhippuric acid is slightly soluble (in water) and a weakly acidic compound (based on its pKa). 4-Hydroxyhippuric acid has been detected in multiple biofluids, such as feces, urine, and blood. 4-Hydroxyhippuric acid can be biosynthesized from N-benzoylglycine.	http://www.hmdb.ca/metabolites/HMDB0013678

4-Hydroxyphenylpyruvic acid ; HMDB0000707	(4-Hydroxyphenyl)pyruvic acid, also known as 4-hydroxy a-oxobenzenepropanoate or hppa, belongs to the class of organic compounds known as phenylpyruvic acid derivatives. Phenylpyruvic acid derivatives are compounds containing a phenylpyruvic acid moiety, which consists of a phenyl group substituted at the second position by an pyruvic acid (4-Hydroxyphenyl)pyruvic acid exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa) (4-Hydroxyphenyl)pyruvic acid has been found in human prostate tissue, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, (4-hydroxyphenyl)pyruvic acid is primarily located in the cytoplasm and mitochondria (4-Hydroxyphenyl)pyruvic acid exists in all eukaryotes, ranging from yeast to humans. In humans, (4-hydroxyphenyl)pyruvic acid is involved in the disulfiram action pathway, the phenylalanine and tyrosine metabolism pathway, and the tyrosine metabolism pathway (4-Hydroxyphenyl)pyruvic acid is also involved in several metabolic disorders, some of which include the tyrosinemia type 3 (tyro3) pathway, the alkaptonuria pathway, the phenylketonuria pathway, and the tyrosinemia type I pathway. Outside of the human body, (4-hydroxyphenyl)pyruvic acid can be found in a number of food items such as red raspberry, pak choy, enokitake, and spinach. This makes (4-hydroxyphenyl)pyruvic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000707

4-Hydroxyproline ; HMDB0000725	trans-4-Hydroxy-L-proline, also known as hydroxyproline or Hyp, belongs to the class of organic compounds known as proline and derivatives. Proline and derivatives are compounds containing proline or a derivative thereof resulting from reaction of proline at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. trans-4-Hydroxy-L-proline is a drug which is used in france as a combination product for the treatment of small, superficial wounds. trans-4-Hydroxy-L-proline exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). trans-4-Hydroxy-L-proline has been found throughout most human tissues, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, trans-4-hydroxy-L-proline is primarily located in the mitochondria and endoplasmic reticulum. trans-4-Hydroxy-L-proline exists in all eukaryotes, ranging from yeast to humans. In humans, trans-4-hydroxy-L-proline is involved in the oncogenic action OF fumarate pathway and the oncogenic action OF succinate pathway. trans-4-Hydroxy-L-proline is also involved in several metabolic disorders, some of which include the hyperornithinemia with gyrate atrophy (hoga) pathway, the hyperprolinemia type I pathway, the hyperprolinemia type II pathway, and L-arginine:glycine amidinotransferase deficiency. trans-4-Hydroxy-L-proline is a potentially toxic compound. trans-4-Hydroxy-L-proline has been found to be associated with several diseases known as hemodialysis and alzheimer's disease; trans-4-hydroxy-l-proline has also been linked to several inborn metabolic disorders including hydroxyprolinemia and iminoglycinuria.	http://www.hmdb.ca/metabolites/HMDB0000725

4-Hydroxyproline ; HMDB00725	trans-4-Hydroxy-L-proline, also known as hydroxyproline or Hyp, belongs to the class of organic compounds known as proline and derivatives. Proline and derivatives are compounds containing proline or a derivative thereof resulting from reaction of proline at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. trans-4-Hydroxy-L-proline is a drug which is used in france as a combination product for the treatment of small, superficial wounds. trans-4-Hydroxy-L-proline exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). trans-4-Hydroxy-L-proline has been found throughout most human tissues, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, trans-4-hydroxy-L-proline is primarily located in the mitochondria and endoplasmic reticulum. trans-4-Hydroxy-L-proline exists in all eukaryotes, ranging from yeast to humans. In humans, trans-4-hydroxy-L-proline is involved in the oncogenic action OF fumarate pathway and the oncogenic action OF succinate pathway. trans-4-Hydroxy-L-proline is also involved in several metabolic disorders, some of which include the hyperornithinemia with gyrate atrophy (hoga) pathway, the hyperprolinemia type I pathway, the hyperprolinemia type II pathway, and L-arginine:glycine amidinotransferase deficiency. trans-4-Hydroxy-L-proline is a potentially toxic compound. trans-4-Hydroxy-L-proline has been found to be associated with several diseases known as hemodialysis and alzheimer's disease; trans-4-hydroxy-l-proline has also been linked to several inborn metabolic disorders including hydroxyprolinemia and iminoglycinuria.	http://www.hmdb.ca/metabolites/HMDB0000725

4-Hydroxystyrene ; HMDB0004072	4-Vinylphenol, also known as P-hydroxystyrene, belongs to the class of organic compounds known as styrenes. These are organic compounds containing an ethenylbenzene moiety. 4-Vinylphenol exists as a solid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). 4-Vinylphenol exists in all eukaryotes, ranging from yeast to humans. 4-Vinylphenol participates in a number of enzymatic reactions. In particular, 4-vinylphenol can be biosynthesized from styrene. 4-Vinylphenol can also be converted into 4-vinylphenol sulfate. 4-Vinylphenol is a sweet, almond shell, and chemical tasting compound that can be found in a number of food items such as corn, beer, highbush blueberry, and tea. This makes 4-vinylphenol a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0004072
4-Hydroxystyrene ; HMDB04072	4-Vinylphenol, also known as P-hydroxystyrene, belongs to the class of organic compounds known as styrenes. These are organic compounds containing an ethenylbenzene moiety. 4-Vinylphenol exists as a solid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). 4-Vinylphenol exists in all eukaryotes, ranging from yeast to humans. 4-Vinylphenol participates in a number of enzymatic reactions. In particular, 4-vinylphenol can be biosynthesized from styrene. 4-Vinylphenol can also be converted into 4-vinylphenol sulfate. 4-Vinylphenol is a sweet, almond shell, and chemical tasting compound that can be found in a number of food items such as corn, beer, highbush blueberry, and tea. This makes 4-vinylphenol a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0004072

4-Pyridoxic acid ; HMDB0000017	4-Pyridoxic acid, also known as 4-pyridoxate, belongs to the class of organic compounds known as pyridinecarboxylic acids. Pyridinecarboxylic acids are compounds containing a pyridine ring bearing a carboxylic acid group. 4-Pyridoxic acid exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). 4-Pyridoxic acid has been found in human liver, bladder and kidney tissues, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, 4-pyridoxic acid is primarily located in the cytoplasm. 4-Pyridoxic acid can be biosynthesized from pyridoxal; which is mediated by the enzyme aldehyde oxidase. In humans, 4-pyridoxic acid is involved in the vitamin B6 metabolism pathway. 4-Pyridoxic acid is also involved in the metabolic disorder called the hypophosphatasia pathway.	http://www.hmdb.ca/metabolites/HMDB0000017
4-Pyridoxic acid ; HMDB00017	4-Pyridoxic acid, also known as 4-pyridoxate, belongs to the class of organic compounds known as pyridinecarboxylic acids. Pyridinecarboxylic acids are compounds containing a pyridine ring bearing a carboxylic acid group. 4-Pyridoxic acid exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). 4-Pyridoxic acid has been found in human liver, bladder and kidney tissues, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, 4-pyridoxic acid is primarily located in the cytoplasm. 4-Pyridoxic acid can be biosynthesized from pyridoxal; which is mediated by the enzyme aldehyde oxidase. In humans, 4-pyridoxic acid is involved in the vitamin B6 metabolism pathway. 4-Pyridoxic acid is also involved in the metabolic disorder called the hypophosphatasia pathway.	http://www.hmdb.ca/metabolites/HMDB0000017

4-Trimethylammoniobutanoic acid ; HMDB0001161	4-Trimethylammoniobutanoic acid, also known as gamma-butyrobetaine or deoxycarnitine, belongs to the class of organic compounds known as straight chain fatty acids. These are fatty acids with a straight aliphatic chain. 4-Trimethylammoniobutanoic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. 4-Trimethylammoniobutanoic acid has been found in human liver and kidney tissues, and has also been primarily detected in urine, feces, saliva, and blood. Within the cell, 4-trimethylammoniobutanoic acid is primarily located in the cytoplasm, membrane (predicted from logP), adiposome and mitochondria. 4-Trimethylammoniobutanoic acid participates in a number of enzymatic reactions. In particular, 4-Trimethylammoniobutanoic acid can be biosynthesized from 4-trimethylammoniobutanal through its interaction with the enzyme 4-trimethylaminobutyraldehyde dehydrogenase. In addition, 4-Trimethylammoniobutanoic acid and oxoglutaric acid can be converted into L-carnitine and succinic acid; which is mediated by the enzyme Gamma-butyrobetaine dioxygenase. In humans, 4-trimethylammoniobutanoic acid is involved in carnitine synthesis pathway.	http://www.hmdb.ca/metabolites/HMDB0001161

4-Trimethylammoniobutanoic acid ; HMDB01161	4-Trimethylammoniobutanoic acid, also known as gamma-butyrobetaine or deoxycarnitine, belongs to the class of organic compounds known as straight chain fatty acids. These are fatty acids with a straight aliphatic chain. 4-Trimethylammoniobutanoic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. 4-Trimethylammoniobutanoic acid has been found in human liver and kidney tissues, and has also been primarily detected in urine, feces, saliva, and blood. Within the cell, 4-trimethylammoniobutanoic acid is primarily located in the cytoplasm, membrane (predicted from logP), adiposome and mitochondria. 4-Trimethylammoniobutanoic acid participates in a number of enzymatic reactions. In particular, 4-Trimethylammoniobutanoic acid can be biosynthesized from 4-trimethylammoniobutanal through its interaction with the enzyme 4-trimethylaminobutyraldehyde dehydrogenase. In addition, 4-Trimethylammoniobutanoic acid and oxoglutaric acid can be converted into L-carnitine and succinic acid; which is mediated by the enzyme Gamma-butyrobetaine dioxygenase. In humans, 4-trimethylammoniobutanoic acid is involved in carnitine synthesis pathway.	http://www.hmdb.ca/metabolites/HMDB0001161
4-Vinylphenol sulfate ; HMDB0062775	4-Vinylphenol sulfate belongs to the class of organic compounds known as phenylsulfates. Phenylsulfates are compounds containing a sulfuric acid group conjugated to a phenyl group. 4-Vinylphenol sulfate has been detected in multiple biofluids, such as urine and blood. 4-Vinylphenol sulfate can be biosynthesized from 4-hydroxystyrene.	http://www.hmdb.ca/metabolites/HMDB0062775

5,6-Dihydrouridine ; HMDB0000497	5,6-Dihydrouridine belongs to the class of organic compounds known as glycosylamines. Glycosylamines are compounds consisting of an amine with a beta-N-glycosidic bond to a carbohydrate, thus forming a cyclic hemiaminal ether bond (alpha-amino ether). 5,6-Dihydrouridine is soluble (in water) and a very weakly acidic compound (based on its pKa). 5,6-Dihydrouridine has been detected in multiple biofluids, such as urine and blood. Within the cell, 5,6-dihydrouridine is primarily located in the cytoplasm. 5,6-Dihydrouridine can be converted into 3-(3-amino-3-carboxypropyl)-5,6-dihydrouridine.	http://www.hmdb.ca/metabolites/HMDB0000497
5-Acetylamino-6-amino-3-methyluracil ; HMDB0004400	5-Acetylamino-6-amino-3-methyluracil, also known as aamu or 5-ammu, belongs to the class of organic compounds known as n-acetylarylamines. These are acetamides where one or more amide hydrogens is substituted by an aryl group. 5-Acetylamino-6-amino-3-methyluracil is slightly soluble (in water) and a very weakly acidic compound (based on its pKa). 5-Acetylamino-6-amino-3-methyluracil has been detected in multiple biofluids, such as feces, urine, and blood. In humans, 5-acetylamino-6-amino-3-methyluracil is involved in the caffeine metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0004400
5-Acetylamino-6-amino-3-methyluracil ; HMDB04400	5-Acetylamino-6-amino-3-methyluracil, also known as aamu or 5-ammu, belongs to the class of organic compounds known as n-acetylarylamines. These are acetamides where one or more amide hydrogens is substituted by an aryl group. 5-Acetylamino-6-amino-3-methyluracil is slightly soluble (in water) and a very weakly acidic compound (based on its pKa). 5-Acetylamino-6-amino-3-methyluracil has been detected in multiple biofluids, such as feces, urine, and blood. In humans, 5-acetylamino-6-amino-3-methyluracil is involved in the caffeine metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0004400

5-Acetylamino-6-formylamino-3-methyluracil ; HMDB0011105	5-Acetylamino-6-formylamino-3-methyluracil, also known as afmu, belongs to the class of organic compounds known as hydroxypyrimidines. These are organic compounds containing a hydroxyl group attached to a pyrimidine ring. Pyrimidine is a 6-membered ring consisting of four carbon atoms and two nitrogen centers at the 1- and 3- ring positions. 5-Acetylamino-6-formylamino-3-methyluracil is considered to be a practically insoluble (in water) and relatively neutral molecule. 5-Acetylamino-6-formylamino-3-methyluracil has been found in human liver and kidney tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, 5-acetylamino-6-formylamino-3-methyluracil is primarily located in the cytoplasm. 5-Acetylamino-6-formylamino-3-methyluracil can be biosynthesized from paraxanthine and acetyl-CoA; which is mediated by the enzyme arylamine N-acetyltransferase 2. In humans, 5-acetylamino-6-formylamino-3-methyluracil is involved in the caffeine metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0011105

5-Aminolevulinic acid ; HMDB0001149	5-Amino-levulinic acid, also known as 5-aminolevulinate or 5-amino-4-oxopentanoate, belongs to the class of organic compounds known as delta amino acids and derivatives. Delta amino acids and derivatives are compounds containing a carboxylic acid group and an amino group at the C5 carbon atom. 5-Amino-levulinic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). 5-Amino-levulinic acid has been found throughout most human tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, 5-amino-levulinic acid is primarily located in the mitochondria and cytoplasm. 5-Amino-levulinic acid exists in all eukaryotes, ranging from yeast to humans. In humans, 5-amino-levulinic acid is involved in the porphyrin metabolism pathway and the glycine and serine metabolism pathway. 5-Amino-levulinic acid is also involved in several metabolic disorders, some of which include 3-phosphoglycerate dehydrogenase deficiency, the acute intermittent porphyria pathway, the NON ketotic hyperglycinemia pathway, and the hyperglycinemia, non-ketotic pathway. Outside of the human body, 5-amino-levulinic acid can be found in a number of food items such as mamey sapote, sunflower, grapefruit/pummelo hybrid, and burbot. This makes 5-amino-levulinic acid a potential biomarker for the consumption of these food products. 5-Amino-levulinic acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001149

5-Aminolevulinic acid ; HMDB01149	5-Amino-levulinic acid, also known as 5-aminolevulinate or 5-amino-4-oxopentanoate, belongs to the class of organic compounds known as delta amino acids and derivatives. Delta amino acids and derivatives are compounds containing a carboxylic acid group and an amino group at the C5 carbon atom. 5-Amino-levulinic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). 5-Amino-levulinic acid has been found throughout most human tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, 5-amino-levulinic acid is primarily located in the mitochondria and cytoplasm. 5-Amino-levulinic acid exists in all eukaryotes, ranging from yeast to humans. In humans, 5-amino-levulinic acid is involved in the porphyrin metabolism pathway and the glycine and serine metabolism pathway. 5-Amino-levulinic acid is also involved in several metabolic disorders, some of which include 3-phosphoglycerate dehydrogenase deficiency, the acute intermittent porphyria pathway, the NON ketotic hyperglycinemia pathway, and the hyperglycinemia, non-ketotic pathway. Outside of the human body, 5-amino-levulinic acid can be found in a number of food items such as mamey sapote, sunflower, grapefruit/pummelo hybrid, and burbot. This makes 5-amino-levulinic acid a potential biomarker for the consumption of these food products. 5-Amino-levulinic acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001149

5-HEPE ; HMDB0005081	(+/-)-5-hepe belongs to the class of organic compounds known as hydroxyeicosapentaenoic acids. These are eicosanoic acids with an attached hydroxyl group and five CC double bonds. Thus, (+/-)-5-hepe is considered to be an eicosanoid lipid molecule (+/-)-5-hepe is considered to be a practically insoluble (in water) and relatively neutral molecule (+/-)-5-hepe has been detected in multiple biofluids, such as blood and urine. Within the cell, (+/-)-5-hepe is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0005081
5-HETE ; HMDB0011134	5S-Hete, also known as 5(S)-hete, belongs to the class of organic compounds known as hydroxyeicosatetraenoic acids. These are eicosanoic acids with an attached hydroxyl group and four CC double bonds. Thus, 5S-hete is considered to be an eicosanoid lipid molecule. 5S-Hete is considered to be a practically insoluble (in water) and relatively neutral molecule. 5S-Hete has been detected in multiple biofluids, such as blood, cerebrospinal fluid, and urine. Within the cell, 5S-hete is primarily located in the membrane (predicted from logP) and cytoplasm. In humans, 5S-hete is involved in the salicylate-sodium action pathway, the magnesium salicylate action pathway, the valdecoxib action pathway, and the lumiracoxib action pathway. 5S-Hete is also involved in a couple of metabolic disorders, which include leukotriene C4 synthesis deficiency and the tiaprofenic Acid action pathway.	http://www.hmdb.ca/metabolites/HMDB0011134

5-HETE ; HMDB11134	5S-Hete, also known as 5(S)-hete, belongs to the class of organic compounds known as hydroxyeicosatetraenoic acids. These are eicosanoic acids with an attached hydroxyl group and four CC double bonds. Thus, 5S-hete is considered to be an eicosanoid lipid molecule. 5S-Hete is considered to be a practically insoluble (in water) and relatively neutral molecule. 5S-Hete has been detected in multiple biofluids, such as blood, cerebrospinal fluid, and urine. Within the cell, 5S-hete is primarily located in the membrane (predicted from logP) and cytoplasm. In humans, 5S-hete is involved in the salicylate-sodium action pathway, the magnesium salicylate action pathway, the valdecoxib action pathway, and the lumiracoxib action pathway. 5S-Hete is also involved in a couple of metabolic disorders, which include leukotriene C4 synthesis deficiency and the tiaprofenic Acid action pathway.	http://www.hmdb.ca/metabolites/HMDB0011134

5-Hydroxy-L-tryptophan ; HMDB0000472	5-Hydroxy-L-tryptophan, also known as oxitriptan or levothym, belongs to the class of organic compounds known as serotonins. Serotonins are compounds containing a serotonin moiety, which consists of an indole that bears an aminoethyl a position 2 and a hydroxyl group at position 5. 5-Hydroxy-L-tryptophan is a drug which is used for use as an antidepressant, appetite suppressant, and sleep aid. 5-Hydroxy-L-tryptophan exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). 5-Hydroxy-L-tryptophan has been found in human prostate tissue, and has also been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, 5-hydroxy-L-tryptophan is primarily located in the cytoplasm. 5-Hydroxy-L-tryptophan participates in a number of enzymatic reactions. In particular, 5-Hydroxy-L-tryptophan and 4a-hydroxytetrahydrobiopterin can be biosynthesized from L-tryptophan and tetrahydrobiopterin; which is mediated by the enzyme tryptophan 5-hydroxylase 1. In addition, 5-Hydroxy-L-tryptophan can be converted into serotonin through its interaction with the enzyme aromatic-L-amino-acid decarboxylase. In humans, 5-hydroxy-L-tryptophan is involved in the tryptophan metabolism pathway. 5-Hydroxy-L-tryptophan has been linked to the inborn metabolic disorders including aromatic l-amino acid decarboxylase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000472

5-Hydroxy-L-tryptophan ; HMDB00472	5-Hydroxy-L-tryptophan, also known as oxitriptan or levothym, belongs to the class of organic compounds known as serotonins. Serotonins are compounds containing a serotonin moiety, which consists of an indole that bears an aminoethyl a position 2 and a hydroxyl group at position 5. 5-Hydroxy-L-tryptophan is a drug which is used for use as an antidepressant, appetite suppressant, and sleep aid. 5-Hydroxy-L-tryptophan exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). 5-Hydroxy-L-tryptophan has been found in human prostate tissue, and has also been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, 5-hydroxy-L-tryptophan is primarily located in the cytoplasm. 5-Hydroxy-L-tryptophan participates in a number of enzymatic reactions. In particular, 5-Hydroxy-L-tryptophan and 4a-hydroxytetrahydrobiopterin can be biosynthesized from L-tryptophan and tetrahydrobiopterin; which is mediated by the enzyme tryptophan 5-hydroxylase 1. In addition, 5-Hydroxy-L-tryptophan can be converted into serotonin through its interaction with the enzyme aromatic-L-amino-acid decarboxylase. In humans, 5-hydroxy-L-tryptophan is involved in the tryptophan metabolism pathway. 5-Hydroxy-L-tryptophan has been linked to the inborn metabolic disorders including aromatic l-amino acid decarboxylase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000472

5-Hydroxyindoleacetic acid ; HMDB0000763	5-Hydroxyindoleacetic acid, also known as 5-hiaa or 5-hydroxyindole-3-acetate, belongs to the class of organic compounds known as indole-3-acetic acid derivatives. Indole-3-acetic acid derivatives are compounds containing an acetic acid (or a derivative) linked to the C3 carbon atom of an indole. 5-Hydroxyindoleacetic acid exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). 5-Hydroxyindoleacetic acid has been found throughout most human tissues, and has also been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, 5-hydroxyindoleacetic acid is primarily located in the cytoplasm and mitochondria. 5-Hydroxyindoleacetic acid participates in a number of enzymatic reactions. In particular, 5-Hydroxyindoleacetic acid can be biosynthesized from 5-hydroxyindoleacetaldehyde through the action of the enzyme aldehyde dehydrogenase, mitochondrial. In addition, 5-Hydroxyindoleacetic acid and S-adenosylmethionine can be converted into 5-methoxyindoleacetate and S-adenosylhomocysteine through the action of the enzyme acetylserotonin O-methyltransferase. In humans, 5-hydroxyindoleacetic acid is involved in the tryptophan metabolism pathway. Outside of the human body, 5-hydroxyindoleacetic acid can be found in a number of food items such as lemon thyme, chicory roots, custard apple, and durian. This makes 5-hydroxyindoleacetic acid a potential biomarker for the consumption of these food products. 5-Hydroxyindoleacetic acid has been found to be associated with several diseases known as schizophrenia, hereditary spastic paraplegia, dopamine-serotonin vesicular transport defect, and brunner syndrome; 5-hydroxyindoleacetic acid has also been linked to the inborn metabolic disorders including aromatic l-amino acid decarboxylase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000763

5-Hydroxylysine ; HMDB0000450	5-Hydroxylysine, also known as lysine, 5 hydroxy, belongs to the class of organic compounds known as l-alpha-amino acids. These are alpha amino acids which have the L-configuration of the alpha-carbon atom. 5-Hydroxylysine is soluble (in water) and a moderately acidic compound (based on its pKa). 5-Hydroxylysine has been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, 5-hydroxylysine is primarily located in the cytoplasm. 5-Hydroxylysine exists in all eukaryotes, ranging from yeast to humans. Outside of the human body, 5-hydroxylysine can be found in broad bean and pulses. This makes 5-hydroxylysine a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000450
5-Hydroxylysine ; HMDB00450	5-Hydroxylysine, also known as lysine, 5 hydroxy, belongs to the class of organic compounds known as l-alpha-amino acids. These are alpha amino acids which have the L-configuration of the alpha-carbon atom. 5-Hydroxylysine is soluble (in water) and a moderately acidic compound (based on its pKa). 5-Hydroxylysine has been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, 5-hydroxylysine is primarily located in the cytoplasm. 5-Hydroxylysine exists in all eukaryotes, ranging from yeast to humans. Outside of the human body, 5-hydroxylysine can be found in broad bean and pulses. This makes 5-hydroxylysine a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000450

5-Hydroxymethyl-4-methyluracil ; HMDB0000544	5-Hydroxymethyl-4-methyluracil, also known as pentoxyl or 4-methyl-5-hydroxymethyluracil, belongs to the class of organic compounds known as pyrimidones. Pyrimidones are compounds that contain a pyrimidine ring, which bears a ketone. Pyrimidine is a 6-membered ring consisting of four carbon atoms and two nitrogen centers at the 1- and 3- ring positions. 5-Hydroxymethyl-4-methyluracil is slightly soluble (in water) and a very weakly acidic compound (based on its pKa). Within the cell, 5-hydroxymethyl-4-methyluracil is primarily located in the cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000544
5-Hydroxymethyl-4-methyluracil ; HMDB00544	5-Hydroxymethyl-4-methyluracil, also known as pentoxyl or 4-methyl-5-hydroxymethyluracil, belongs to the class of organic compounds known as pyrimidones. Pyrimidones are compounds that contain a pyrimidine ring, which bears a ketone. Pyrimidine is a 6-membered ring consisting of four carbon atoms and two nitrogen centers at the 1- and 3- ring positions. 5-Hydroxymethyl-4-methyluracil is slightly soluble (in water) and a very weakly acidic compound (based on its pKa). Within the cell, 5-hydroxymethyl-4-methyluracil is primarily located in the cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000544
5-Hydroxytryptophol ; HMDB0001855	5-Hydroxytryptophol, also known as 5-hydroxyindol or 5-htol, belongs to the class of organic compounds known as hydroxyindoles. These are organic compounds containing an indole moiety that carries a hydroxyl group. 5-Hydroxytryptophol is slightly soluble (in water) and a very weakly acidic compound (based on its pKa). 5-Hydroxytryptophol has been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid. Outside of the human body, 5-hydroxytryptophol can be found in a number of food items such as yam, cumin, oil-seed camellia, and chia. This makes 5-hydroxytryptophol a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0001855

5-Hydroxytryptophol ; HMDB01855	5-Hydroxytryptophol, also known as 5-hydroxyindol or 5-htol, belongs to the class of organic compounds known as hydroxyindoles. These are organic compounds containing an indole moiety that carries a hydroxyl group. 5-Hydroxytryptophol is slightly soluble (in water) and a very weakly acidic compound (based on its pKa). 5-Hydroxytryptophol has been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid. Outside of the human body, 5-hydroxytryptophol can be found in a number of food items such as yam, cumin, oil-seed camellia, and chia. This makes 5-hydroxytryptophol a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0001855
5-Methylthioribose ; HMDB0001087	5-Methylthioribose belongs to the class of organic compounds known as pentoses. These are monosaccharides in which the carbohydrate moiety contains five carbon atoms. 5-Methylthioribose is soluble (in water) and a very weakly acidic compound (based on its pKa). Within the cell, 5-methylthioribose is primarily located in the cytoplasm. Outside of the human body, 5-methylthioribose can be found in a number of food items such as hedge mustard, atlantic herring, cucurbita (gourd), and burdock. This makes 5-methylthioribose a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0001087

5alpha-Androstan-3alpha,17beta-diol disulfate ; HMDB0094682	5alpha-Androstan-3alpha,17beta-diol disulfate, also known as 5a-androstan-3a,17b-diol disulfuric acid or 5-androstane-3,17s-diol disulphate, belongs to the class of organic compounds known as sulfated steroids. These are sterol lipids containing a sulfate group attached to the steroid skeleton. 5alpha-Androstan-3alpha,17beta-diol disulfate is considered to be a practically insoluble (in water) and relatively neutral molecule. 5alpha-Androstan-3alpha,17beta-diol disulfate has been found in human hepatic tissue, and has also been detected in multiple biofluids, such as feces, blood, and urine. Within the cell, 5alpha-androstan-3alpha,17beta-diol disulfate is primarily located in the membrane (predicted from logP) and cytoplasm. 5alpha-Androstan-3alpha,17beta-diol disulfate can be biosynthesized from 5alpha-androstane-3beta,17beta-diol.	http://www.hmdb.ca/metabolites/HMDB0094682
5alpha-pregnan-3beta,20alpha-diol disulfate ; HMDB0094650	5alpha-Pregnan-3beta,20alpha-diol disulfate, also known as 5a-pregnan-3b,20a-diol disulfuric acid or 5-pregnan-3s,20-diol disulfate, belongs to the class of organic compounds known as 2,4,5-trisubstituted thiazoles. 2,4,5-trisubstituted thiazoles are compounds containing a thiazole ring substituted at positions 2, 4 and 5 only. 5alpha-Pregnan-3beta,20alpha-diol disulfate is considered to be a practically insoluble (in water) and relatively neutral molecule. 5alpha-Pregnan-3beta,20alpha-diol disulfate has been primarily detected in feces.	http://www.hmdb.ca/metabolites/HMDB0094650
5Z-Dodecenoic acid ; HMDB0000529	Lauroleinic acid, also known as 5-dodecenoate or 5-dodecenoic acid, belongs to the class of organic compounds known as medium-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 4 and 12 carbon atoms. Lauroleinic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Lauroleinic acid has been detected in multiple biofluids, such as blood and urine. Within the cell, lauroleinic acid is primarily located in the cytoplasm, membrane (predicted from logP) and adiposome.	http://www.hmdb.ca/metabolites/HMDB0000529

5Z-Dodecenoic acid ; HMDB00529	Lauroleinic acid, also known as 5-dodecenoate or 5-dodecenoic acid, belongs to the class of organic compounds known as medium-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 4 and 12 carbon atoms. Lauroleinic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Lauroleinic acid has been detected in multiple biofluids, such as blood and urine. Within the cell, lauroleinic acid is primarily located in the cytoplasm, membrane (predicted from logP) and adiposome.	http://www.hmdb.ca/metabolites/HMDB0000529
6,8-Dihydroxypurine ; HMDB0001182	6,8-Dihydroxypurine, also known as 6,8-purinediol or 8-oxohypoxanthine, belongs to the class of organic compounds known as hypoxanthines. Hypoxanthines are compounds containing the purine derivative 1H-purin-6(9H)-one. Purine is a bicyclic aromatic compound made up of a pyrimidine ring fused to an imidazole ring. 6,8-Dihydroxypurine is slightly soluble (in water) and a very weakly acidic compound (based on its pKa).	http://www.hmdb.ca/metabolites/HMDB0001182
6,8-Dihydroxypurine ; HMDB01182	6,8-Dihydroxypurine, also known as 6,8-purinediol or 8-oxohypoxanthine, belongs to the class of organic compounds known as hypoxanthines. Hypoxanthines are compounds containing the purine derivative 1H-purin-6(9H)-one. Purine is a bicyclic aromatic compound made up of a pyrimidine ring fused to an imidazole ring. 6,8-Dihydroxypurine is slightly soluble (in water) and a very weakly acidic compound (based on its pKa).	http://www.hmdb.ca/metabolites/HMDB0001182
6-Oxopiperidine-2-carboxylic acid ; HMDB0061705	6-Oxopiperidine-2-carboxylic acid, also known as adipo-2,6-lactam or cyclic alpha-aminoadipic acid, belongs to the class of organic compounds known as alpha amino acids and derivatives. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon), or a derivative thereof. 6-Oxopiperidine-2-carboxylic acid is soluble (in water) and a weakly acidic compound (based on its pKa).	http://www.hmdb.ca/metabolites/HMDB0061705

7-Ketodeoxycholic acid ; HMDB0000391	, also known as 7-oxodeoxycholate, belongs to the class of organic compounds known as dihydroxy bile acids, alcohols and derivatives. Dihydroxy bile acids, alcohols and derivatives are compounds containing or derived from a bile acid or alcohol, and which bears exactly two carboxylic acid groups. Thus, is considered to be a bile acid lipid molecule. is considered to be a practically insoluble (in water) and relatively neutral molecule. has been found throughout all human tissues, and has also been detected in multiple biofluids, such as feces and urine. Within the cell, is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000391
7-Ketodeoxycholic acid ; HMDB00391	, also known as 7-oxodeoxycholate, belongs to the class of organic compounds known as dihydroxy bile acids, alcohols and derivatives. Dihydroxy bile acids, alcohols and derivatives are compounds containing or derived from a bile acid or alcohol, and which bears exactly two carboxylic acid groups. Thus, is considered to be a bile acid lipid molecule. is considered to be a practically insoluble (in water) and relatively neutral molecule. has been found throughout all human tissues, and has also been detected in multiple biofluids, such as feces and urine. Within the cell, is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000391

7-Methylguanine ; HMDB0000897	7-Methylguanine, also known as n7-me-G, belongs to the class of organic compounds known as hypoxanthines. Hypoxanthines are compounds containing the purine derivative 1H-purin-6(9H)-one. Purine is a bicyclic aromatic compound made up of a pyrimidine ring fused to an imidazole ring. 7-Methylguanine exists as a solid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). 7-Methylguanine has been detected in multiple biofluids, such as feces and blood. Within the cell, 7-methylguanine is primarily located in the cytoplasm. 7-Methylguanine exists in all eukaryotes, ranging from yeast to humans.	http://www.hmdb.ca/metabolites/HMDB0000897
7-Methylguanine ; HMDB00897	7-Methylguanine, also known as n7-me-G, belongs to the class of organic compounds known as hypoxanthines. Hypoxanthines are compounds containing the purine derivative 1H-purin-6(9H)-one. Purine is a bicyclic aromatic compound made up of a pyrimidine ring fused to an imidazole ring. 7-Methylguanine exists as a solid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). 7-Methylguanine has been detected in multiple biofluids, such as feces and blood. Within the cell, 7-methylguanine is primarily located in the cytoplasm. 7-Methylguanine exists in all eukaryotes, ranging from yeast to humans.	http://www.hmdb.ca/metabolites/HMDB0000897

7alpha-Hydroxy-3-oxo-4-cholestenoate ; HMDB0012458	7alpha-Hydroxy-3-oxo-4-cholestenoate, also known as 7-hoca or (7)-7-hydroxy-3-oxocholest-4-en-26-Oate, belongs to the class of organic compounds known as monohydroxy bile acids, alcohols and derivatives. These are bile acids, alcohols or any of their derivatives bearing a hydroxyl group. 7alpha-Hydroxy-3-oxo-4-cholestenoate is considered to be a practically insoluble (in water) and relatively neutral molecule. 7alpha-Hydroxy-3-oxo-4-cholestenoate has been found in human hepatic tissue tissue, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, 7alpha-hydroxy-3-oxo-4-cholestenoate is primarily located in the membrane (predicted from logP) and cytoplasm. In humans, 7alpha-hydroxy-3-oxo-4-cholestenoate is involved in congenital bile acid synthesis defect type II pathway, bile acid biosynthesis pathway, congenital bile acid synthesis defect type III pathway, and the cerebrotendinous xanthomatosis (CTX) pathway. 7alpha-Hydroxy-3-oxo-4-cholestenoate is also involved in a few metabolic disorders, which include the zellweger syndrome pathway, 27-hydroxylase deficiency, and the familial hypercholanemia (fhca) pathway.	http://www.hmdb.ca/metabolites/HMDB0012458

8,11,14-Eicosatrienoic acid ; HMDB0002925	Bishomo-gamma-linolenic acid, also known as (Z,Z,Z)-8,11,14-icosatrienoate or 8,11,14-eicosatrienoic acid, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Bishomo-gamma-linolenic acid is a drug which is used for nutritional supplementation, also for treating dietary shortage or imbalance. Bishomo-gamma-linolenic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Bishomo-gamma-linolenic acid has been found in human adipose tissue and epidermis tissues, and has also been detected in multiple biofluids, such as feces, blood, and urine. Within the cell, bishomo-gamma-linolenic acid is primarily located in the cytoplasm, membrane (predicted from logP) and adiposome. In humans, bishomo-gamma-linolenic acid is involved in the Alpha linolenic Acid and linoleic Acid metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0002925
8,11,14-Eicosatrienoic acid ; HMDB02925	Bishomo-gamma-linolenic acid, also known as (Z,Z,Z)-8,11,14-icosatrienoate or 8,11,14-eicosatrienoic acid, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Bishomo-gamma-linolenic acid is a drug which is used for nutritional supplementation, also for treating dietary shortage or imbalance. Bishomo-gamma-linolenic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Bishomo-gamma-linolenic acid has been found in human adipose tissue and epidermis tissues, and has also been detected in multiple biofluids, such as feces, blood, and urine. Within the cell, bishomo-gamma-linolenic acid is primarily located in the cytoplasm, membrane (predicted from logP) and adiposome. In humans, bishomo-gamma-linolenic acid is involved in the Alpha linolenic Acid and linoleic Acid metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0002925

8-HETE ; HMDB0004679	8S-Hete belongs to the class of organic compounds known as hydroxyeicosatetraenoic acids. These are eicosanoic acids with an attached hydroxyl group and four CC double bonds. Thus, 8S-hete is considered to be an eicosanoid lipid molecule. 8S-Hete is considered to be a practically insoluble (in water) and relatively neutral molecule. 8S-Hete has been detected in multiple biofluids, such as blood, cerebrospinal fluid, and urine. Within the cell, 8S-hete is primarily located in the membrane (predicted from logP) and cytoplasm. In humans, 8S-hete is involved in the trisalicylate-choline action pathway, the bromfenac action pathway, the rofecoxib action pathway, and the acetylsalicylic Acid action pathway. 8S-Hete is also involved in a couple of metabolic disorders, which include the tiaprofenic Acid action pathway and leukotriene C4 synthesis deficiency.	http://www.hmdb.ca/metabolites/HMDB0004679
8-HETE ; HMDB04679	8S-Hete belongs to the class of organic compounds known as hydroxyeicosatetraenoic acids. These are eicosanoic acids with an attached hydroxyl group and four CC double bonds. Thus, 8S-hete is considered to be an eicosanoid lipid molecule. 8S-Hete is considered to be a practically insoluble (in water) and relatively neutral molecule. 8S-Hete has been detected in multiple biofluids, such as blood, cerebrospinal fluid, and urine. Within the cell, 8S-hete is primarily located in the membrane (predicted from logP) and cytoplasm. In humans, 8S-hete is involved in the trisalicylate-choline action pathway, the bromfenac action pathway, the rofecoxib action pathway, and the acetylsalicylic Acid action pathway. 8S-Hete is also involved in a couple of metabolic disorders, which include the tiaprofenic Acid action pathway and leukotriene C4 synthesis deficiency.	http://www.hmdb.ca/metabolites/HMDB0004679

9,10-DHOME ; HMDB0004704	9,10-Dihome, also known as 9,10-dhoa or leukotoxin diol, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Thus, 9,10-dihome is considered to be an octadecanoid lipid molecule. 9,10-Dihome is considered to be a practically insoluble (in water) and relatively neutral molecule. 9,10-Dihome has been detected in multiple biofluids, such as blood, cerebrospinal fluid, and urine. Within the cell, 9,10-dihome is primarily located in the membrane (predicted from logP), cytoplasm and adiposome.	http://www.hmdb.ca/metabolites/HMDB0004704
9,10-DHOME ; HMDB04704	9,10-Dihome, also known as 9,10-dhoa or leukotoxin diol, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Thus, 9,10-dihome is considered to be an octadecanoid lipid molecule. 9,10-Dihome is considered to be a practically insoluble (in water) and relatively neutral molecule. 9,10-Dihome has been detected in multiple biofluids, such as blood, cerebrospinal fluid, and urine. Within the cell, 9,10-dihome is primarily located in the membrane (predicted from logP), cytoplasm and adiposome.	http://www.hmdb.ca/metabolites/HMDB0004704

9-cis-Retinoic acid ; HMDB0002369	9-cis-Retinoic acid, also known as alitretinoin or panretin, belongs to the class of organic compounds known as retinoids. These are oxygenated derivatives of 3,7-dimethyl-1-(2,6,6-trimethylcyclohex-1-enyl)nona-1,3,5,7-tetraene and derivatives thereof. 9-cis-Retinoic acid is a drug which is used for topical treatment of cutaneous lesions in patients with aids-related kaposi's sarcoma. 9-cis-Retinoic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. 9-cis-Retinoic acid has been primarily detected in blood. Within the cell, 9-cis-retinoic acid is primarily located in the membrane (predicted from logP) and cytoplasm. 9-cis-Retinoic acid participates in a number of enzymatic reactions. In particular, 9-cis-Retinoic acid can be biosynthesized from 9-cis-retinal through the action of the enzyme retinal dehydrogenase 1. In addition, 9-cis-Retinoic acid can be biosynthesized from 9-cis-retinal; which is mediated by the enzyme retinal dehydrogenase 2. In humans, 9-cis-retinoic acid is involved in the retinol metabolism pathway. 9-cis-Retinoic acid is also involved in the metabolic disorder called vitamin a deficiency.	http://www.hmdb.ca/metabolites/HMDB0002369

9-cis-Retinoic acid ; HMDB02369	9-cis-Retinoic acid, also known as alitretinoin or panretin, belongs to the class of organic compounds known as retinoids. These are oxygenated derivatives of 3,7-dimethyl-1-(2,6,6-trimethylcyclohex-1-enyl)nona-1,3,5,7-tetraene and derivatives thereof. 9-cis-Retinoic acid is a drug which is used for topical treatment of cutaneous lesions in patients with aids-related kaposi's sarcoma. 9-cis-Retinoic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. 9-cis-Retinoic acid has been primarily detected in blood. Within the cell, 9-cis-retinoic acid is primarily located in the membrane (predicted from logP) and cytoplasm. 9-cis-Retinoic acid participates in a number of enzymatic reactions. In particular, 9-cis-Retinoic acid can be biosynthesized from 9-cis-retinal through the action of the enzyme retinal dehydrogenase 1. In addition, 9-cis-Retinoic acid can be biosynthesized from 9-cis-retinal; which is mediated by the enzyme retinal dehydrogenase 2. In humans, 9-cis-retinoic acid is involved in the retinol metabolism pathway. 9-cis-Retinoic acid is also involved in the metabolic disorder called vitamin a deficiency.	http://www.hmdb.ca/metabolites/HMDB0002369
Acesulfame ; HMDB0033585	Acesulfame, also known as acesulphamo or acesulfame sodium, belongs to the class of organic compounds known as organic sulfuric acids and derivatives. These are organic compounds containing the sulfuric acid or a derivative thereof. Acesulfame exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Within the cell, acesulfame is primarily located in the cytoplasm. Acesulfame has a bitter taste.	http://www.hmdb.ca/metabolites/HMDB0033585

Acesulfame ; HMDB33585	Acesulfame, also known as acesulphamo or acesulfame sodium, belongs to the class of organic compounds known as organic sulfuric acids and derivatives. These are organic compounds containing the sulfuric acid or a derivative thereof. Acesulfame exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Within the cell, acesulfame is primarily located in the cytoplasm. Acesulfame has a bitter taste.	http://www.hmdb.ca/metabolites/HMDB0033585
Acetaminophen ; HMDB0001859	Acetaminophen, also known as paracetamol or apap, belongs to the class of organic compounds known as 1-hydroxy-2-unsubstituted benzenoids. These are phenols that are unsubstituted at the 2-position. Acetaminophen is a drug which is used for temporary relief of fever, minor aches, and pains. Acetaminophen exists as a solid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). Acetaminophen has been found throughout all human tissues, and has also been detected in most biofluids, including saliva, feces, blood, and cerebrospinal fluid. Within the cell, acetaminophen is primarily located in the cytoplasm. Acetaminophen participates in a number of enzymatic reactions. In particular, Acetaminophen can be converted into NAPQI through the action of the enzymes cytochrome P450 2E1, cytochrome P450 1A2, cytochrome P450 2D6, cytochrome P450 3A4, and cytochrome P450 2A6. In addition, Acetaminophen and uridine diphosphate glucuronic acid can be converted into acetaminophen glucuronide and uridine 5'-diphosphate through the action of the enzymes UDP-glucuronosyltransferase 1-9, UDP-glucuronosyltransferase 2B15, UDP-glucuronosyltransferase 1-1, and UDP-glucuronosyltransferase 1-6. In humans, acetaminophen is involved in the acetaminophen metabolism pathway and the acetaminophen action pathway. Acetaminophen has a bitter taste. Acetaminophen is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001859

Acetaminophen ; HMDB01859	Acetaminophen, also known as paracetamol or apap, belongs to the class of organic compounds known as 1-hydroxy-2-unsubstituted benzenoids. These are phenols that are unsubstituted at the 2-position. Acetaminophen is a drug which is used for temporary relief of fever, minor aches, and pains. Acetaminophen exists as a solid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). Acetaminophen has been found throughout all human tissues, and has also been detected in most biofluids, including saliva, feces, blood, and cerebrospinal fluid. Within the cell, acetaminophen is primarily located in the cytoplasm. Acetaminophen participates in a number of enzymatic reactions. In particular, Acetaminophen can be converted into NAPQI through the action of the enzymes cytochrome P450 2E1, cytochrome P450 1A2, cytochrome P450 2D6, cytochrome P450 3A4, and cytochrome P450 2A6. In addition, Acetaminophen and uridine diphosphate glucuronic acid can be converted into acetaminophen glucuronide and uridine 5'-diphosphate through the action of the enzymes UDP-glucuronosyltransferase 1-9, UDP-glucuronosyltransferase 2B15, UDP-glucuronosyltransferase 1-1, and UDP-glucuronosyltransferase 1-6. In humans, acetaminophen is involved in the acetaminophen metabolism pathway and the acetaminophen action pathway. Acetaminophen has a bitter taste. Acetaminophen is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001859

Acetaminophen glucuronide ; HMDB0010316	Acetaminophen glucuronide, also known as 4-glucuronosidoacetanilide or deethylphenacetin glucuronide, belongs to the class of organic compounds known as phenolic glycosides. These are organic compounds containing a phenolic structure attached to a glycosyl moiety. Some examples of phenolic structures include lignans, and flavonoids. Among the sugar units found in natural glycosides are D-glucose, L-Fructose, and L rhamnose. Acetaminophen glucuronide is soluble (in water) and a weakly acidic compound (based on its pKa). Acetaminophen glucuronide has been found in human liver and kidney tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, acetaminophen glucuronide is primarily located in the cytoplasm. Acetaminophen glucuronide participates in a number of enzymatic reactions. In particular, Acetaminophen glucuronide and uridine 5'-diphosphate can be biosynthesized from acetaminophen and uridine diphosphate glucuronic acid; which is mediated by the enzymes UDP-glucuronosyltransferase 1-9, UDP-glucuronosyltransferase 2B15, UDP-glucuronosyltransferase 1-1, and UDP-glucuronosyltransferase 1-6. In addition, Acetaminophen glucuronide can be converted into acetaminophen glucuronide; which is catalyzed by the enzyme ATP-binding cassette sub-family g member 2. In humans, acetaminophen glucuronide is involved in the acetaminophen metabolism pathway. Acetaminophen glucuronide has been linked to the inborn metabolic disorders including beta-thalassemia.	http://www.hmdb.ca/metabolites/HMDB0010316

Acetaminophen glucuronide ; HMDB10316	Acetaminophen glucuronide, also known as 4-glucuronosidoacetanilide or deethylphenacetin glucuronide, belongs to the class of organic compounds known as phenolic glycosides. These are organic compounds containing a phenolic structure attached to a glycosyl moiety. Some examples of phenolic structures include lignans, and flavonoids. Among the sugar units found in natural glycosides are D-glucose, L-Fructose, and L rhamnose. Acetaminophen glucuronide is soluble (in water) and a weakly acidic compound (based on its pKa). Acetaminophen glucuronide has been found in human liver and kidney tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, acetaminophen glucuronide is primarily located in the cytoplasm. Acetaminophen glucuronide participates in a number of enzymatic reactions. In particular, Acetaminophen glucuronide and uridine 5'-diphosphate can be biosynthesized from acetaminophen and uridine diphosphate glucuronic acid; which is mediated by the enzymes UDP-glucuronosyltransferase 1-9, UDP-glucuronosyltransferase 2B15, UDP-glucuronosyltransferase 1-1, and UDP-glucuronosyltransferase 1-6. In addition, Acetaminophen glucuronide can be converted into acetaminophen glucuronide; which is catalyzed by the enzyme ATP-binding cassette sub-family g member 2. In humans, acetaminophen glucuronide is involved in the acetaminophen metabolism pathway. Acetaminophen glucuronide has been linked to the inborn metabolic disorders including beta-thalassemia.	http://www.hmdb.ca/metabolites/HMDB0010316

Acetoacetic acid ; HMDB0000060	Acetoacetic acid, also known as 3-oxobutanoic acid or 3-oxobutyrate, belongs to the class of organic compounds known as short-chain keto acids and derivatives. These are keto acids with an alkyl chain the contains less than 6 carbon atoms. Acetoacetic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Acetoacetic acid has been found in human liver and spleen tissues, and has also been detected in most biofluids, including blood, urine, cerebrospinal fluid, and feces. Within the cell, acetoacetic acid is primarily located in the cytoplasm, mitochondria and peroxisome. Acetoacetic acid exists in all eukaryotes, ranging from yeast to humans. Acetoacetic acid and succinyl-CoA can be converted into succinic acid through the action of the enzyme succinyl-coa:3-ketoacid coenzyme A transferase 1, mitochondrial. In humans, acetoacetic acid is involved in the butyrate metabolism pathway, the disulfiram action pathway, fatty acid biosynthesis pathway, and the phenylalanine and tyrosine metabolism pathway. Acetoacetic acid is also involved in several metabolic disorders, some of which include the 3-methylglutaconic aciduria type III pathway, dopamine beta-hydroxylase deficiency, the propionic acidemia pathway, and 3-methylcrotonyl CoA carboxylase deficiency type I. Acetoacetic acid has been found to be associated with several diseases known as ketosis, pyruvate dehydrogenase phosphatase deficiency, anoxia, and schizophrenia; acetoacetic acid has also been linked to the inborn metabolic disorders including glucose transporter type 1 deficiency syndrome.	http://www.hmdb.ca/metabolites/HMDB0000060

Acetylcarnosine ; HMDB0012881	Acetylcarnosine belongs to the class of organic compounds known as hybrid peptides. Hybrid peptides are compounds containing at least two different types of amino acids (alpha, beta, gamma, delta) linked to each other through a peptide bond. Acetylcarnosine is slightly soluble (in water) and a weakly acidic compound (based on its pKa).	http://www.hmdb.ca/metabolites/HMDB0012881
Acetylcarnosine ; HMDB12881	Acetylcarnosine belongs to the class of organic compounds known as hybrid peptides. Hybrid peptides are compounds containing at least two different types of amino acids (alpha, beta, gamma, delta) linked to each other through a peptide bond. Acetylcarnosine is slightly soluble (in water) and a weakly acidic compound (based on its pKa).	http://www.hmdb.ca/metabolites/HMDB0012881

Acetylcholine ; HMDB0000895	Acetylcholine , also known as ACh or choline acetate, belongs to the class of organic compounds known as acyl cholines. These are acylated derivatives of choline. Choline or 2-Hydroxy-N,N,N-trimethylethanaminium is a quaternary ammonium salt with the chemical formula (CH3)3N+(CH2)2OH. Acetylcholine is a drug which is used to obtain miosis of the iris in seconds after delivery of the lens in cataract surgery, in penetrating keratoplasty, iridectomy and other anterior segment surgery where rapid miosis may be required. Acetylcholine exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Acetylcholine has been found throughout most human tissues, and has also been detected in multiple biofluids, such as saliva and cerebrospinal fluid. Within the cell, acetylcholine is primarily located in the cytoplasm, nucleus, myelin sheath and mitochondria. In humans, acetylcholine is involved in phospholipid biosynthesis pathway, the lafutidine H2-antihistamine action pathway, the cimetidine action pathway, and the omeprazole action pathway. Acetylcholine is also involved in the metabolic disorder called the metiamide action pathway. Outside of the human body, acetylcholine can be found in a number of food items such as red bell pepper, potato, carrot, and green bell pepper. This makes acetylcholine a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000895

Acetylcholine ; HMDB00895	Acetylcholine , also known as ACh or choline acetate, belongs to the class of organic compounds known as acyl cholines. These are acylated derivatives of choline. Choline or 2-Hydroxy-N,N,N-trimethylethanaminium is a quaternary ammonium salt with the chemical formula (CH3)3N+(CH2)2OH. Acetylcholine is a drug which is used to obtain miosis of the iris in seconds after delivery of the lens in cataract surgery, in penetrating keratoplasty, iridectomy and other anterior segment surgery where rapid miosis may be required. Acetylcholine exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Acetylcholine has been found throughout most human tissues, and has also been detected in multiple biofluids, such as saliva and cerebrospinal fluid. Within the cell, acetylcholine is primarily located in the cytoplasm, nucleus, myelin sheath and mitochondria. In humans, acetylcholine is involved in phospholipid biosynthesis pathway, the lafutidine H2-antihistamine action pathway, the cimetidine action pathway, and the omeprazole action pathway. Acetylcholine is also involved in the metabolic disorder called the metiamide action pathway. Outside of the human body, acetylcholine can be found in a number of food items such as red bell pepper, potato, carrot, and green bell pepper. This makes acetylcholine a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000895

Acetylglycine ; HMDB0000532	Acetylglycine, also known as acetamidoacetate or aceturic acid, belongs to the class of organic compounds known as n-acyl-alpha amino acids. N-acyl-alpha amino acids are compounds containing an alpha amino acid which bears an acyl group at its terminal nitrogen atom. Acetylglycine exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Acetylglycine has been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, acetylglycine is primarily located in the cytoplasm. Acetylglycine has been linked to the inborn metabolic disorders including aminoacylase I deficiency.	http://www.hmdb.ca/metabolites/HMDB0000532

Acetylhomoserine ; HMDB0029423	Acetylhomoserine, also known as homoserine acetate, belongs to the class of organic compounds known as alpha amino acids. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon). Acetylhomoserine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Within the cell, acetylhomoserine is primarily located in the cytoplasm. Acetylhomoserine exists in all eukaryotes, ranging from yeast to humans. Acetylhomoserine participates in a number of enzymatic reactions. In particular, Acetylhomoserine can be biosynthesized from L-homoserine and acetyl-CoA through its interaction with the enzyme homoserine O-trans-acetylase. Furthermore, Acetylhomoserine and hydrogen sulfide can be converted into acetic acid and homocysteine through the action of the enzyme O-acetylhomoserine (thiol)-lyase. Furthermore, Acetylhomoserine and hydrogen sulfide can be converted into acetic acid and homocysteine through its interaction with the enzyme O-acetylhomoserine (thiol)-lyase. Furthermore, Acetylhomoserine can be biosynthesized from L-homoserine and acetyl-CoA; which is mediated by the enzyme homoserine O-trans-acetylase. Finally, Selenocysteine and acetylhomoserine can be converted into selenocystathionine and acetic acid; which is catalyzed by the enzyme cystathionine gamma-synthase. Outside of the human body, acetylhomoserine can be found in common pea and pulses. This makes acetylhomoserine a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0029423

Adenine ; HMDB0000034	Adenine, also known as 6-aminopurine or Ade, belongs to the class of organic compounds known as 6-aminopurines. These are purines that carry an amino group at position 6. Purine is a bicyclic aromatic compound made up of a pyrimidine ring fused to an imidazole ring. Adenine is a drug which is used for nutritional supplementation, also for treating dietary shortage or imbalance. Adenine exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Adenine has been found throughout all human tissues, and has also been detected in most biofluids, including blood, cerebrospinal fluid, saliva, and urine. Within the cell, adenine is primarily located in the cytoplasm, nucleus and lysosome. Adenine exists in all eukaryotes, ranging from yeast to humans. Adenine participates in a number of enzymatic reactions. In particular, Adenine and ribose 1-phosphate can be biosynthesized from adenosine through the action of the enzyme purine nucleoside phosphorylase. In addition, Adenine and deoxyribose 1-phosphate can be biosynthesized from deoxyadenosine; which is mediated by the enzyme purine nucleoside phosphorylase. In humans, adenine is involved in the azathioprine action pathway, the purine metabolism pathway, the thioguanine action pathway, and the mercaptopurine action pathway. Adenine is also involved in several metabolic disorders, some of which include adenine phosphoribosyltransferase deficiency (aprt), molybdenum cofactor deficiency, the lesch-nyhan syndrome (LNS) pathway, and xanthine dehydrogenase deficiency (xanthinuria). Adenine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000034

Adenosine ; HMDB0000050	Adenosine, also known as adenocard or ade-rib, belongs to the class of organic compounds known as purine nucleosides. Purine nucleosides are compounds comprising a purine base attached to a ribosyl or deoxyribosyl moiety. Adenosine is a drug which is used as an initial treatment for the termination of paroxysmal supraventricular tachycardia (pvst), including that associated with accessory bypass tracts, and is a drug of choice for terminating stable, narrow-complex supraventricular tachycardias (svt). also used as an adjunct to thallous chloride ti 201 myocardial perfusion scintigraphy (thallium stress test) in patients who are unable to exercise adequately, as well as an adjunct to vagal maneuvers and clinical assessment to establish a specific diagnosis of undefined, stable, narrow-complex svt. Adenosine exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Adenosine has been found throughout all human tissues, and has also been detected in most biofluids, including urine, feces, cerebrospinal fluid, and saliva. Within the cell, adenosine is primarily located in the mitochondria and lysosome. Adenosine exists in all eukaryotes, ranging from yeast to humans. Adenosine participates in a number of enzymatic reactions. In particular, Adenosine can be converted into inosine through its interaction with the enzyme adenosine deaminase. In addition, Adenosine can be converted into adenine and ribose 1-phosphate through its interaction with the enzyme purine nucleoside phosphorylase. In humans, adenosine is involved in the thioguanine action pathway, the azathioprine action pathway, the methionine metabolism pathway, and the mercaptopurine action pathway. Adenosine is also involved in several metabolic disorders, some of which include S-adenosylhomocysteine (sah) hydrolase deficiency, the hypermethioninemia pathway, adenine	http://www.hmdb.ca/metabolites/HMDB0000050

	phosphoribosyltransferase deficiency (aprt), and adenosine deaminase deficiency. Adenosine is a potentially toxic compound.	

Adenosine ; HMDB00050	Adenosine, also known as adenocard or ade-rib, belongs to the class of organic compounds known as purine nucleosides. Purine nucleosides are compounds comprising a purine base attached to a ribosyl or deoxyribosyl moiety. Adenosine is a drug which is used as an initial treatment for the termination of paroxysmal supraventricular tachycardia (pvst), including that associated with accessory bypass tracts, and is a drug of choice for terminating stable, narrow-complex supraventricular tachycardias (svt). also used as an adjunct to thallous chloride ti 201 myocardial perfusion scintigraphy (thallium stress test) in patients who are unable to exercise adequately, as well as an adjunct to vagal maneuvers and clinical assessment to establish a specific diagnosis of undefined, stable, narrow-complex svt. Adenosine exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Adenosine has been found throughout all human tissues, and has also been detected in most biofluids, including urine, feces, cerebrospinal fluid, and saliva. Within the cell, adenosine is primarily located in the mitochondria and lysosome. Adenosine exists in all eukaryotes, ranging from yeast to humans. Adenosine participates in a number of enzymatic reactions. In particular, Adenosine can be converted into inosine through its interaction with the enzyme adenosine deaminase. In addition, Adenosine can be converted into adenine and ribose 1-phosphate through its interaction with the enzyme purine nucleoside phosphorylase. In humans, adenosine is involved in the thioguanine action pathway, the azathioprine action pathway, the methionine metabolism pathway, and the mercaptopurine action pathway. Adenosine is also involved in several metabolic disorders, some of which include S-adenosylhomocysteine (sah) hydrolase deficiency, the hypermethioninemia pathway, adenine	http://www.hmdb.ca/metabolites/HMDB0000050

	phosphoribosyltransferase deficiency (aprt), and adenosine deaminase deficiency. Adenosine is a potentially toxic compound.	

Adenosine monophosphate ; HMDB0000045	Adenosine monophosphate, also known as adenylic acid or AMP, belongs to the class of organic compounds known as purine ribonucleoside monophosphates. These are nucleotides consisting of a purine base linked to a ribose to which one monophosphate group is attached. Adenosine monophosphate is a drug which is used for nutritional supplementation, also for treating dietary shortage or imbalance. Adenosine monophosphate exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). Adenosine monophosphate has been found throughout all human tissues, and has also been detected in most biofluids, including feces, blood, saliva, and cerebrospinal fluid. Adenosine monophosphate can be found anywhere throughout the human cell, such as in golgi, endoplasmic reticulum, lysosome, and peroxisome. Adenosine monophosphate exists in all eukaryotes, ranging from yeast to humans. Adenosine monophosphate can be biosynthesized from L-serine through its interaction with the enzyme serine--trna ligase, cytoplasmic. In humans, adenosine monophosphate is involved in the delavirdine action pathway, the spectinomycin action pathway, the mercaptopurine action pathway, and the propanoate metabolism pathway. Adenosine monophosphate is also involved in several metabolic disorders, some of which include transaldolase deficiency, 3-phosphoglycerate dehydrogenase deficiency, the hyperprolinemia type II pathway, and creatine deficiency, guanidinoacetate methyltransferase deficiency. Outside of the human body, adenosine monophosphate can be found in a number of food items such as elliott's blueberry, conch, nanking cherry, and jackfruit. This makes adenosine monophosphate a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000045

Adenosine monophosphate ; HMDB00045	Adenosine monophosphate, also known as adenylic acid or AMP, belongs to the class of organic compounds known as purine ribonucleoside monophosphates. These are nucleotides consisting of a purine base linked to a ribose to which one monophosphate group is attached. Adenosine monophosphate is a drug which is used for nutritional supplementation, also for treating dietary shortage or imbalance. Adenosine monophosphate exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). Adenosine monophosphate has been found throughout all human tissues, and has also been detected in most biofluids, including feces, blood, saliva, and cerebrospinal fluid. Adenosine monophosphate can be found anywhere throughout the human cell, such as in golgi, endoplasmic reticulum, lysosome, and peroxisome. Adenosine monophosphate exists in all eukaryotes, ranging from yeast to humans. Adenosine monophosphate can be biosynthesized from L-serine through its interaction with the enzyme serine--trna ligase, cytoplasmic. In humans, adenosine monophosphate is involved in the delavirdine action pathway, the spectinomycin action pathway, the mercaptopurine action pathway, and the propanoate metabolism pathway. Adenosine monophosphate is also involved in several metabolic disorders, some of which include transaldolase deficiency, 3-phosphoglycerate dehydrogenase deficiency, the hyperprolinemia type II pathway, and creatine deficiency, guanidinoacetate methyltransferase deficiency. Outside of the human body, adenosine monophosphate can be found in a number of food items such as elliott's blueberry, conch, nanking cherry, and jackfruit. This makes adenosine monophosphate a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000045

Adenosine triphosphate ; HMDB0000538	Adenosine triphosphate, also known as ATP or atriphos, belongs to the class of organic compounds known as purine ribonucleoside triphosphates. These are purine ribobucleotides with a triphosphate group linked to the ribose moiety. Adenosine triphosphate is a drug which is used for nutritional supplementation, also for treating dietary shortage or imbalance. Adenosine triphosphate is slightly soluble (in water) and an extremely strong acidic compound (based on its pKa). Adenosine triphosphate has been found throughout most human tissues, and has also been detected in multiple biofluids, such as saliva, blood, and cerebrospinal fluid. Adenosine triphosphate can be found anywhere throughout the human cell, such as in peroxisome, nucleus, mitochondria, and cytoplasm. Adenosine triphosphate exists in all eukaryotes, ranging from yeast to humans. In humans, adenosine triphosphate is involved in phosphatidylcholine biosynthesis PC(22:0/18:4(6Z,9Z,12Z,15Z)) pathway, phosphatidylcholine biosynthesis PC(22:2(13Z,16Z)/18:3(9Z,12Z,15Z)) pathway, phosphatidylcholine biosynthesis PC(24:1(15Z)/20:2(11Z,14Z)) pathway, and phosphatidylethanolamine biosynthesis pe(9D3/13d5) pathway. Adenosine triphosphate is also involved in several metabolic disorders, some of which include the primary hyperoxaluria II, PH2 pathway, the fanconi-bickel syndrome pathway, the 3-methylglutaconic aciduria type III pathway, and the transfer OF acetyl groups into mitochondria pathway. Outside of the human body, adenosine triphosphate can be found in a number of food items such as watermelon, napa cabbage, broad bean, and flaxseed. This makes adenosine triphosphate a potential biomarker for the consumption of these food products. Adenosine triphosphate is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000538

Adenosine triphosphate ; HMDB00538	Adenosine triphosphate, also known as ATP or atriphos, belongs to the class of organic compounds known as purine ribonucleoside triphosphates. These are purine ribobucleotides with a triphosphate group linked to the ribose moiety. Adenosine triphosphate is a drug which is used for nutritional supplementation, also for treating dietary shortage or imbalance. Adenosine triphosphate is slightly soluble (in water) and an extremely strong acidic compound (based on its pKa). Adenosine triphosphate has been found throughout most human tissues, and has also been detected in multiple biofluids, such as saliva, blood, and cerebrospinal fluid. Adenosine triphosphate can be found anywhere throughout the human cell, such as in peroxisome, nucleus, mitochondria, and cytoplasm. Adenosine triphosphate exists in all eukaryotes, ranging from yeast to humans. In humans, adenosine triphosphate is involved in phosphatidylcholine biosynthesis PC(22:0/18:4(6Z,9Z,12Z,15Z)) pathway, phosphatidylcholine biosynthesis PC(22:2(13Z,16Z)/18:3(9Z,12Z,15Z)) pathway, phosphatidylcholine biosynthesis PC(24:1(15Z)/20:2(11Z,14Z)) pathway, and phosphatidylethanolamine biosynthesis pe(9D3/13d5) pathway. Adenosine triphosphate is also involved in several metabolic disorders, some of which include the primary hyperoxaluria II, PH2 pathway, the fanconi-bickel syndrome pathway, the 3-methylglutaconic aciduria type III pathway, and the transfer OF acetyl groups into mitochondria pathway. Outside of the human body, adenosine triphosphate can be found in a number of food items such as watermelon, napa cabbage, broad bean, and flaxseed. This makes adenosine triphosphate a potential biomarker for the consumption of these food products. Adenosine triphosphate is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000538

Adipic acid ; HMDB0000448	Adipic acid, also known as adipate or hexanedioate, belongs to the class of organic compounds known as medium-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 4 and 12 carbon atoms. Adipic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Adipic acid has been found in human liver and kidney tissues, and has also been detected in most biofluids, including blood, saliva, urine, and feces. Within the cell, adipic acid is primarily located in the cytoplasm and adiposome. Adipic acid is also a parent compound for other transformation products, including but not limited to, 3-methyladipic acid, bis(2-ethylhexyl) adipate, and 3-aminoadipic acid. Adipic acid is an odorless tasting compound that can be found in a number of food items such as root vegetables, fats and oils, common beet, and fruits. This makes adipic acid a potential biomarker for the consumption of these food products. Adipic acid has been found to be associated with several diseases known as 3-hydroxy-3-methylglutaryl-CoA synthase deficiency, 3-hydroxydicarboxylic aciduria, and anorexia nervosa; adipic acid has also been linked to several inborn metabolic disorders including medium chain acyl-CoA dehydrogenase deficiency and malonyl-CoA decarboxylase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000448

Adipic acid ; HMDB00448	Adipic acid, also known as adipate or hexanedioate, belongs to the class of organic compounds known as medium-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 4 and 12 carbon atoms. Adipic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Adipic acid has been found in human liver and kidney tissues, and has also been detected in most biofluids, including blood, saliva, urine, and feces. Within the cell, adipic acid is primarily located in the cytoplasm and adiposome. Adipic acid is also a parent compound for other transformation products, including but not limited to, 3-methyladipic acid, bis(2-ethylhexyl) adipate, and 3-aminoadipic acid. Adipic acid is an odorless tasting compound that can be found in a number of food items such as root vegetables, fats and oils, common beet, and fruits. This makes adipic acid a potential biomarker for the consumption of these food products. Adipic acid has been found to be associated with several diseases known as 3-hydroxy-3-methylglutaryl-CoA synthase deficiency, 3-hydroxydicarboxylic aciduria, and anorexia nervosa; adipic acid has also been linked to several inborn metabolic disorders including medium chain acyl-CoA dehydrogenase deficiency and malonyl-CoA decarboxylase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000448

ADP ; HMDB0001341	Adp, also known as H3ADP or magnesium ADP, belongs to the class of organic compounds known as purine ribonucleoside diphosphates. These are purine ribobucleotides with diphosphate group linked to the ribose moiety. Adp is slightly soluble (in water) and a moderately acidic compound (based on its pKa). Adp has been found throughout all human tissues, and has also been primarily detected in saliva, urine, blood, and cerebrospinal fluid. Adp can be found anywhere throughout the human cell, such as in cytoplasm, nucleus, mitochondria, and peroxisome. Adp exists in all eukaryotes, ranging from yeast to humans. In humans, Adp is involved in phosphatidylethanolamine biosynthesis pe(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/16:0) pathway, phosphatidylcholine biosynthesis PC(22:0/22:2(13Z,16Z)) pathway, phosphatidylethanolamine biosynthesis pe(18:1(11Z)/18:1(9Z)) pathway, and phosphatidylcholine biosynthesis PC(11D3/11m5) pathway. Adp is also involved in several metabolic disorders, some of which include isobutyryl-CoA dehydrogenase deficiency, pyruvate dehydrogenase deficiency (e2), xanthine dehydrogenase deficiency (xanthinuria), and the congenital disorder OF glycosylation CDG-iid pathway.	http://www.hmdb.ca/metabolites/HMDB0001341

ADP ; HMDB01341	Adp, also known as H3ADP or magnesium ADP, belongs to the class of organic compounds known as purine ribonucleoside diphosphates. These are purine ribobucleotides with diphosphate group linked to the ribose moiety. Adp is slightly soluble (in water) and a moderately acidic compound (based on its pKa). Adp has been found throughout all human tissues, and has also been primarily detected in saliva, urine, blood, and cerebrospinal fluid. Adp can be found anywhere throughout the human cell, such as in cytoplasm, nucleus, mitochondria, and peroxisome. Adp exists in all eukaryotes, ranging from yeast to humans. In humans, Adp is involved in phosphatidylethanolamine biosynthesis pe(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/16:0) pathway, phosphatidylcholine biosynthesis PC(22:0/22:2(13Z,16Z)) pathway, phosphatidylethanolamine biosynthesis pe(18:1(11Z)/18:1(9Z)) pathway, and phosphatidylcholine biosynthesis PC(11D3/11m5) pathway. Adp is also involved in several metabolic disorders, some of which include isobutyryl-CoA dehydrogenase deficiency, pyruvate dehydrogenase deficiency (e2), xanthine dehydrogenase deficiency (xanthinuria), and the congenital disorder OF glycosylation CDG-iid pathway.	http://www.hmdb.ca/metabolites/HMDB0001341

Adrenic acid ; HMDB0002226	Adrenic acid, also known as adrenate, belongs to the class of organic compounds known as very long-chain fatty acids. These are fatty acids with an aliphatic tail that contains at least 22 carbon atoms. Adrenic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Adrenic acid has been detected in multiple biofluids, such as blood and urine. Adrenic acid can be found anywhere throughout the human cell, such as in cytoplasm, adiposome, peroxisome, and myelin sheath. Adrenic acid participates in a number of enzymatic reactions. In particular, Adrenic acid can be biosynthesized from arachidonic acid through its interaction with the enzyme elongation OF very long chain fatty acids protein 5. In addition, Adrenic acid can be converted into tetracosatetraenoic acid (24:4N-6); which is mediated by the enzyme elongation OF very long chain fatty acids protein 4. In humans, adrenic acid is involved in the Alpha linolenic Acid and linoleic Acid metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0002226

Adrenic acid ; HMDB02226	Adrenic acid, also known as adrenate, belongs to the class of organic compounds known as very long-chain fatty acids. These are fatty acids with an aliphatic tail that contains at least 22 carbon atoms. Adrenic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Adrenic acid has been detected in multiple biofluids, such as blood and urine. Adrenic acid can be found anywhere throughout the human cell, such as in cytoplasm, adiposome, peroxisome, and myelin sheath. Adrenic acid participates in a number of enzymatic reactions. In particular, Adrenic acid can be biosynthesized from arachidonic acid through its interaction with the enzyme elongation OF very long chain fatty acids protein 5. In addition, Adrenic acid can be converted into tetracosatetraenoic acid (24:4N-6); which is mediated by the enzyme elongation OF very long chain fatty acids protein 4. In humans, adrenic acid is involved in the Alpha linolenic Acid and linoleic Acid metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0002226
Allantoin ; HMDB0000462	Allantoin, also known as glyoxyldiureide or 5-ureidohydantoin, belongs to the class of organic compounds known as imidazoles. Imidazoles are compounds containing an imidazole ring, which is an aromatic five-member ring with two nitrogen atoms at positions 1 and 3, and three carbon atoms. Allantoin exists as a solid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). Allantoin has been detected in most biofluids, including urine, feces, cerebrospinal fluid, and blood. Within the cell, allantoin is primarily located in the cytoplasm. Allantoin exists in all eukaryotes, ranging from yeast to humans. Allantoin can be biosynthesized from hydantoin. Outside of the human body, allantoin can be found in a number of food items such as rowal, lotus, pasta, and date. This makes allantoin a potential biomarker for the consumption of these food products. Allantoin is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000462

Allantoin ; HMDB00462	Allantoin, also known as glyoxyldiureide or 5-ureidohydantoin, belongs to the class of organic compounds known as imidazoles. Imidazoles are compounds containing an imidazole ring, which is an aromatic five-member ring with two nitrogen atoms at positions 1 and 3, and three carbon atoms. Allantoin exists as a solid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). Allantoin has been detected in most biofluids, including urine, feces, cerebrospinal fluid, and blood. Within the cell, allantoin is primarily located in the cytoplasm. Allantoin exists in all eukaryotes, ranging from yeast to humans. Allantoin can be biosynthesized from hydantoin. Outside of the human body, allantoin can be found in a number of food items such as rowal, lotus, pasta, and date. This makes allantoin a potential biomarker for the consumption of these food products. Allantoin is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000462

Allocholic acid ; HMDB0000505	Cholic acid, also known as cholate or cholsaeure, belongs to the class of organic compounds known as trihydroxy bile acids, alcohols and derivatives. These are prenol lipids structurally characterized by a bile acid or alcohol which bears three hydroxyl groups. Cholic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Cholic acid has been found throughout all human tissues, and has also been primarily detected in bile, feces, urine, and blood. Within the cell, cholic acid is primarily located in the membrane (predicted from logP) and cytoplasm. Cholic acid participates in a number of enzymatic reactions. In particular, Chenodeoxycholoyl-CoA and cholic acid can be converted into chenodeoxycholic acid; which is catalyzed by the enzyme bile acyl-CoA synthetase. In addition, Cholic acid can be biosynthesized from choloyl-CoA; which is mediated by the enzyme bile acyl-CoA synthetase. In humans, cholic acid is involved in the cerebrotendinous xanthomatosis (CTX) pathway, bile acid biosynthesis pathway, congenital bile acid synthesis defect type II pathway, and congenital bile acid synthesis defect type III pathway. Cholic acid is also involved in a few metabolic disorders, which include the zellweger syndrome pathway, 27-hydroxylase deficiency, and the familial hypercholanemia (fhca) pathway. Outside of the human body, cholic acid can be found in a number of food items such as ginkgo nuts, celeriac, lotus, and small-leaf linden. This makes cholic acid a potential biomarker for the consumption of these food products. Cholic acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000505

Allopurinol ; HMDB0014581	Allopurinol, also known as zyloprim or milurit, belongs to the class of organic compounds known as pyrazolo[3,4-d]pyrimidines. These are aromatic heterocyclic compounds containing a pyrazolo[3,4-d]pyrimidine ring system, which consists of a pyrazole ring fused to but and not sharing a nitrogen atom with a pyrimidine ring. Allopurinol is a drug which is used for the treatment of hyperuricemia associated with primary or secondary gout. also indicated for the treatment of primary or secondary uric acid nephropathy, with or without the symptoms of gout, as well as chemotherapy-induced hyperuricemia and recurrent renal calculi. Allopurinol exists as a solid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). Allopurinol has been detected in multiple biofluids, such as urine and blood. Within the cell, allopurinol is primarily located in the cytoplasm. Allopurinol participates in a number of enzymatic reactions. In particular, allopurinol can be biosynthesized from 1H-pyrazolo[4,3-D]pyrimidine. Allopurinol can also be converted into allopurinol riboside. Allopurinol is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0014581

Allopurinol ; HMDB14581	Allopurinol, also known as zyloprim or milurit, belongs to the class of organic compounds known as pyrazolo[3,4-d]pyrimidines. These are aromatic heterocyclic compounds containing a pyrazolo[3,4-d]pyrimidine ring system, which consists of a pyrazole ring fused to but and not sharing a nitrogen atom with a pyrimidine ring. Allopurinol is a drug which is used for the treatment of hyperuricemia associated with primary or secondary gout. also indicated for the treatment of primary or secondary uric acid nephropathy, with or without the symptoms of gout, as well as chemotherapy-induced hyperuricemia and recurrent renal calculi. Allopurinol exists as a solid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). Allopurinol has been detected in multiple biofluids, such as urine and blood. Within the cell, allopurinol is primarily located in the cytoplasm. Allopurinol participates in a number of enzymatic reactions. In particular, allopurinol can be biosynthesized from 1H-pyrazolo[4,3-D]pyrimidine. Allopurinol can also be converted into allopurinol riboside. Allopurinol is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0014581
Allopurinol riboside ; HMDB0000481	Allopurinol riboside belongs to the class of organic compounds known as pyrazolo[3,4-d]pyrimidine glycosides. These are nucleosides or derivatives thereof that consist of a pyazolo[3,2-d]pyrimidine ring system that is N-glycosidically linked to a ribose or deoxyribose. They bear the sugar moiety on the pyrimidine part of the molecule. Allopurinol riboside is soluble (in water) and a very weakly acidic compound (based on its pKa). Allopurinol riboside has been primarily detected in blood. Within the cell, allopurinol riboside is primarily located in the cytoplasm. Allopurinol riboside can be converted into allopurinol.	http://www.hmdb.ca/metabolites/HMDB0000481

Allopurinol riboside ; HMDB00481	Allopurinol riboside belongs to the class of organic compounds known as pyrazolo[3,4-d]pyrimidine glycosides. These are nucleosides or derivatives thereof that consist of a pyazolo[3,2-d]pyrimidine ring system that is N-glycosidically linked to a ribose or deoxyribose. They bear the sugar moiety on the pyrimidine part of the molecule. Allopurinol riboside is soluble (in water) and a very weakly acidic compound (based on its pKa). Allopurinol riboside has been primarily detected in blood. Within the cell, allopurinol riboside is primarily located in the cytoplasm. Allopurinol riboside can be converted into allopurinol.	http://www.hmdb.ca/metabolites/HMDB0000481
alpha-CEHC ; HMDB0001518	Alpha-Cehc, also known as A-cehc, belongs to the class of organic compounds known as 1-benzopyrans. These are organic aromatic compounds that 1-benzopyran, a bicyclic compound made up of a benzene ring fused to a pyran, so that the oxygen atom is at the 1-position. Alpha-Cehc is considered to be a practically insoluble (in water) and relatively neutral molecule. Alpha-Cehc has been primarily detected in blood. Within the cell, Alpha-cehc is primarily located in the membrane (predicted from logP).	http://www.hmdb.ca/metabolites/HMDB0001518
alpha-CEHC ; HMDB01518	Alpha-Cehc, also known as A-cehc, belongs to the class of organic compounds known as 1-benzopyrans. These are organic aromatic compounds that 1-benzopyran, a bicyclic compound made up of a benzene ring fused to a pyran, so that the oxygen atom is at the 1-position. Alpha-Cehc is considered to be a practically insoluble (in water) and relatively neutral molecule. Alpha-Cehc has been primarily detected in blood. Within the cell, Alpha-cehc is primarily located in the membrane (predicted from logP).	http://www.hmdb.ca/metabolites/HMDB0001518

alpha-Ketoisovaleric acid ; HMDB0000019	, also known as alpha-ketovaline or 2-oxoisovalerate, belongs to the class of organic compounds known as short-chain keto acids and derivatives. These are keto acids with an alkyl chain the contains less than 6 carbon atoms. Thus, is considered to be a fatty acid lipid molecule. exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). has been detected in most biofluids, including feces, saliva, cerebrospinal fluid, and urine. Within the cell, is primarily located in the cytoplasm and mitochondria. exists in all eukaryotes, ranging from yeast to humans. In humans, is involved in the valine, leucine and isoleucine degradation pathway. is also involved in several metabolic disorders, some of which include the 3-methylglutaconic aciduria type I pathway, 3-methylcrotonyl CoA carboxylase deficiency type I, the 3-methylglutaconic aciduria type IV pathway, and 3-hydroxy-3-methylglutaryl-CoA lyase deficiency. Outside of the human body, can be found in a number of food items such as mung bean, poppy, pistachio, and garden onion. This makes a potential biomarker for the consumption of these food products. is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000019

alpha-Ketoisovaleric acid ; HMDB00019	, also known as alpha-ketovaline or 2-oxoisovalerate, belongs to the class of organic compounds known as short-chain keto acids and derivatives. These are keto acids with an alkyl chain the contains less than 6 carbon atoms. Thus, is considered to be a fatty acid lipid molecule. exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). has been detected in most biofluids, including feces, saliva, cerebrospinal fluid, and urine. Within the cell, is primarily located in the cytoplasm and mitochondria. exists in all eukaryotes, ranging from yeast to humans. In humans, is involved in the valine, leucine and isoleucine degradation pathway. is also involved in several metabolic disorders, some of which include the 3-methylglutaconic aciduria type I pathway, 3-methylcrotonyl CoA carboxylase deficiency type I, the 3-methylglutaconic aciduria type IV pathway, and 3-hydroxy-3-methylglutaryl-CoA lyase deficiency. Outside of the human body, can be found in a number of food items such as mung bean, poppy, pistachio, and garden onion. This makes a potential biomarker for the consumption of these food products. is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000019

Alpha-Lactose ; HMDB0000186	Alpha-Lactose, also known as anhydrous lactose or tablettose, belongs to the class of organic compounds known as o-glycosyl compounds. These are glycoside in which a sugar group is bonded through one carbon to another group via a O-glycosidic bond. Alpha-Lactose exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Alpha-Lactose has been found throughout most human tissues, and has also been primarily detected in feces, urine, blood, and breast milk. Within the cell, Alpha-lactose is primarily located in the cytoplasm, lysosome and golgi. Alpha-Lactose participates in a number of enzymatic reactions. In particular, Uridine 5'-diphosphate and Alpha-lactose can be biosynthesized from D-glucose and uridine diphosphategalactose through its interaction with the enzyme lactose synthase. In addition, Alpha-Lactose can be converted into melibiose and D-galactose through its interaction with the enzyme Alpha-galactosidase a. In humans, Alpha-lactose is involved in the lactose degradation pathway, the galactose metabolism pathway, lactose synthesis pathway, and the lactose intolerance pathway. Alpha-Lactose is also involved in a few metabolic disorders, which include glut-1 deficiency syndrome, the congenital disorder OF glycosylation CDG-iid pathway, and the galactosemia pathway. Outside of the human body, Alpha-lactose can be found in cow milk. This makes Alpha-lactose a potential biomarker for the consumption of this food product.	http://www.hmdb.ca/metabolites/HMDB0000186

Alpha-Linolenic acid ; HMDB0001388	Alpha-Linolenic acid, also known as linolenate or ALA, belongs to the class of organic compounds known as lineolic acids and derivatives. These are derivatives of lineolic acid. Lineolic acid is a polyunsaturated omega-6 18 carbon long fatty acid, with two CC double bonds at the 9- and 12-positions. Alpha-Linolenic acid is a drug which is used for nutritional supplementation and for treating dietary shortage or imbalance. Alpha-Linolenic acid exists as a liquid and is considered to be practically insoluble (in water) and relatively neutral. Alpha-Linolenic acid has been found throughout most human tissues, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, Alpha-linolenic acid is primarily located in the cytoplasm and membrane (predicted from logP). Alpha-Linolenic acid can be converted into stearidonic acid; which is catalyzed by the enzyme fatty acid desaturase 2. In humans, Alpha-linolenic acid is involved in the Alpha linolenic Acid and linoleic Acid metabolism pathway. Outside of the human body, Alpha-linolenic acid can be found in a number of food items such as rubus (blackberry, raspberry), bitter gourd, sparkleberry, and romaine lettuce. This makes Alpha-linolenic acid a potential biomarker for the consumption of these food products. Alpha-Linolenic acid is a potentially toxic compound. Alpha-Linolenic acid has been found to be associated with several diseases known as thyroid cancer, essential hypertension, and hypertension; alpha-linolenic acid has also been linked to the inborn metabolic disorders including isovaleric acidemia.	http://www.hmdb.ca/metabolites/HMDB0001388

Alpha-Linolenic acid ; HMDB01388	Alpha-Linolenic acid, also known as linolenate or ALA, belongs to the class of organic compounds known as lineolic acids and derivatives. These are derivatives of lineolic acid. Lineolic acid is a polyunsaturated omega-6 18 carbon long fatty acid, with two CC double bonds at the 9- and 12-positions. Alpha-Linolenic acid is a drug which is used for nutritional supplementation and for treating dietary shortage or imbalance. Alpha-Linolenic acid exists as a liquid and is considered to be practically insoluble (in water) and relatively neutral. Alpha-Linolenic acid has been found throughout most human tissues, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, Alpha-linolenic acid is primarily located in the cytoplasm and membrane (predicted from logP). Alpha-Linolenic acid can be converted into stearidonic acid; which is catalyzed by the enzyme fatty acid desaturase 2. In humans, Alpha-linolenic acid is involved in the Alpha linolenic Acid and linoleic Acid metabolism pathway. Outside of the human body, Alpha-linolenic acid can be found in a number of food items such as rubus (blackberry, raspberry), bitter gourd, sparkleberry, and romaine lettuce. This makes Alpha-linolenic acid a potential biomarker for the consumption of these food products. Alpha-Linolenic acid is a potentially toxic compound. Alpha-Linolenic acid has been found to be associated with several diseases known as thyroid cancer, essential hypertension, and hypertension; alpha-linolenic acid has also been linked to the inborn metabolic disorders including isovaleric acidemia.	http://www.hmdb.ca/metabolites/HMDB0001388

Alpha-Muricholic acid ; HMDB0000506	Alpha-Muricholic acid, also known as A-muricholate, belongs to the class of organic compounds known as trihydroxy bile acids, alcohols and derivatives. These are prenol lipids structurally characterized by a bile acid or alcohol which bears three hydroxyl groups. Alpha-Muricholic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Alpha-Muricholic acid has been found throughout all human tissues, and has also been primarily detected in urine. Within the cell, Alpha-muricholic acid is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000506
Alpha-Muricholic acid ; HMDB00506	Alpha-Muricholic acid, also known as A-muricholate, belongs to the class of organic compounds known as trihydroxy bile acids, alcohols and derivatives. These are prenol lipids structurally characterized by a bile acid or alcohol which bears three hydroxyl groups. Alpha-Muricholic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Alpha-Muricholic acid has been found throughout all human tissues, and has also been primarily detected in urine. Within the cell, Alpha-muricholic acid is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000506

alpha-Tocopherol ; HMDB0001893	Alpha-Tocopherol, also known as vitamin e or D-tocopherol, belongs to the class of organic compounds known as tocopherols. These are vitamin E derivatives containing a saturated trimethyltridecyl chain attached to the carbon C6 atom of a benzopyran ring system. The differ from tocotrienols that contain an unsaturated trimethyltrideca-3,7,11-trien-1-yl chain. Thus, Alpha-tocopherol is considered to be a quinone lipid molecule. Alpha-Tocopherol exists as a liquid and is considered to be practically insoluble (in water) and relatively neutral. Alpha-Tocopherol has been found throughout most human tissues, and has also been detected in most biofluids, including saliva, breast milk, blood, and cerebrospinal fluid. Within the cell, Alpha-tocopherol is primarily located in the cytoplasm and membrane (predicted from logP). Alpha-Tocopherol can be converted into 13-hydroxy-alpha-tocopherol. Outside of the human body, Alpha-tocopherol can be found in a number of food items such as red bell pepper, sea-buckthornberry, capers, and carrot. This makes Alpha-tocopherol a potential biomarker for the consumption of these food products. Alpha-Tocopherol is a potentially toxic compound. Alpha-Tocopherol has been found to be associated with several diseases known as thyroid cancer, vitamin e deficiency, parkinson's disease, and cerebrotendinous xanthomatosis; alpha-tocopherol has also been linked to the inborn metabolic disorders including abetalipoproteinemia.	http://www.hmdb.ca/metabolites/HMDB0001893

alpha-Tocopherol ; HMDB01893	Alpha-Tocopherol, also known as vitamin e or D-tocopherol, belongs to the class of organic compounds known as tocopherols. These are vitamin E derivatives containing a saturated trimethyltridecyl chain attached to the carbon C6 atom of a benzopyran ring system. The differ from tocotrienols that contain an unsaturated trimethyltrideca-3,7,11-trien-1-yl chain. Thus, Alpha-tocopherol is considered to be a quinone lipid molecule. Alpha-Tocopherol exists as a liquid and is considered to be practically insoluble (in water) and relatively neutral. Alpha-Tocopherol has been found throughout most human tissues, and has also been detected in most biofluids, including saliva, breast milk, blood, and cerebrospinal fluid. Within the cell, Alpha-tocopherol is primarily located in the cytoplasm and membrane (predicted from logP). Alpha-Tocopherol can be converted into 13-hydroxy-alpha-tocopherol. Outside of the human body, Alpha-tocopherol can be found in a number of food items such as red bell pepper, sea-buckthornberry, capers, and carrot. This makes Alpha-tocopherol a potential biomarker for the consumption of these food products. Alpha-Tocopherol is a potentially toxic compound. Alpha-Tocopherol has been found to be associated with several diseases known as thyroid cancer, vitamin e deficiency, parkinson's disease, and cerebrotendinous xanthomatosis; alpha-tocopherol has also been linked to the inborn metabolic disorders including abetalipoproteinemia.	http://www.hmdb.ca/metabolites/HMDB0001893

Aminoadipic acid ; HMDB0000510	Aminoadipic acid, also known as a-aminoadipate or Aad, belongs to the class of organic compounds known as alpha amino acids. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon). Aminoadipic acid exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Aminoadipic acid has been found in human prostate tissue, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, aminoadipic acid is primarily located in the cytoplasm and mitochondria. Aminoadipic acid participates in a number of enzymatic reactions. In particular, Aminoadipic acid can be biosynthesized from allysine; which is catalyzed by the enzyme Alpha-aminoadipic semialdehyde dehydrogenase. In addition, Aminoadipic acid and oxoglutaric acid can be converted into oxoadipic acid and L-glutamic acid; which is mediated by the enzyme kynurenine/alpha-aminoadipate aminotransferase, mitochondrial. In humans, aminoadipic acid is involved in the pyridoxine dependency with seizures pathway and the lysine degradation pathway. Aminoadipic acid is also involved in several metabolic disorders, some of which include the saccharopinuria/hyperlysinemia II pathway, the 2-aminoadipic 2-oxoadipic aciduria pathway, the glutaric aciduria type I pathway, and the hyperlysinemia II or saccharopinuria pathway. Outside of the human body, aminoadipic acid can be found in common sage and spearmint. This makes aminoadipic acid a potential biomarker for the consumption of these food products. Aminoadipic acid is a potentially toxic compound. Aminoadipic acid has been found to be associated with several diseases known as schizophrenia and alpha-aminoadipic and alpha-ketoadipic aciduria; aminoadipic acid has also been linked to several inborn metabolic disorders including 2-ketoadipic acidemia and alpha-aminoadipic aciduria.	http://www.hmdb.ca/metabolites/HMDB0000510

Aminoadipic acid ; HMDB00510	Aminoadipic acid, also known as a-aminoadipate or Aad, belongs to the class of organic compounds known as alpha amino acids. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon). Aminoadipic acid exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Aminoadipic acid has been found in human prostate tissue, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, aminoadipic acid is primarily located in the cytoplasm and mitochondria. Aminoadipic acid participates in a number of enzymatic reactions. In particular, Aminoadipic acid can be biosynthesized from allysine; which is catalyzed by the enzyme Alpha-aminoadipic semialdehyde dehydrogenase. In addition, Aminoadipic acid and oxoglutaric acid can be converted into oxoadipic acid and L-glutamic acid; which is mediated by the enzyme kynurenine/alpha-aminoadipate aminotransferase, mitochondrial. In humans, aminoadipic acid is involved in the pyridoxine dependency with seizures pathway and the lysine degradation pathway. Aminoadipic acid is also involved in several metabolic disorders, some of which include the saccharopinuria/hyperlysinemia II pathway, the 2-aminoadipic 2-oxoadipic aciduria pathway, the glutaric aciduria type I pathway, and the hyperlysinemia II or saccharopinuria pathway. Outside of the human body, aminoadipic acid can be found in common sage and spearmint. This makes aminoadipic acid a potential biomarker for the consumption of these food products. Aminoadipic acid is a potentially toxic compound. Aminoadipic acid has been found to be associated with several diseases known as schizophrenia and alpha-aminoadipic and alpha-ketoadipic aciduria; aminoadipic acid has also been linked to several inborn metabolic disorders including 2-ketoadipic acidemia and alpha-aminoadipic aciduria.	http://www.hmdb.ca/metabolites/HMDB0000510

Amoxicillin ; HMDB0015193	Amoxicillin, also known as clamoxyl or amopenixin, belongs to the class of organic compounds known as penicillins. These are organic compounds containing the penicillin core structure, which is structurally characterized by a penam ring bearing two methyl groups at position 2, and an amide group at position 6 [starting from the sulfur atom at position 1]. Amoxicillin is a drug which is used for the treatment of infections of the ear, nose, and throat, the genitourinary tract, the skin and skin structure, and the lower respiratory tract due to susceptible (only b-lactamase-negative) strains of <i>streptococcus</i> spp (a- and b-hemolytic strains only), <i>s. pneumoniae</i>, <i>staphylococcus</i> spp., <i>h. influenzae</i>, <i>e. coli</i>, <i>p. mirabilis</i>, or <i>e. faecalis</i>. also for the treatment of acute, uncomplicated gonorrhea (ano-genital and urethral infections) due to <i>n. gonorrhoeae</i> (males and females). Amoxicillin exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Amoxicillin has been detected in multiple biofluids, such as urine and blood. Within the cell, amoxicillin is primarily located in the cytoplasm and membrane (predicted from logP). Amoxicillin is also a parent compound for other transformation products, including but not limited to, amoxicillin diketopiperazine, amoxicilloyl polylysine, and amoxicilloyl-butylamine.	http://www.hmdb.ca/metabolites/HMDB0015193

Anandamide ; HMDB0004080	Anandamide (20:4, N-6), also known as arachidonylethanolamide or AEA, belongs to the class of organic compounds known as n-acylethanolamines. N-acylethanolamines are compounds containing an N-acyethanolamine moiety, which is characterized by an acyl group is linked to the nitrogen atom of ethanolamine. Thus, anandamide (20:4, N-6) is considered to be a fatty amide lipid molecule. Anandamide (20:4, N-6) is considered to be a practically insoluble (in water) and relatively neutral molecule. Anandamide (20:4, N-6) has been detected in multiple biofluids, such as blood and cerebrospinal fluid. Within the cell, anandamide (20:4, N-6) is primarily located in the membrane (predicted from logP). Anandamide (20:4, N-6) participates in a number of enzymatic reactions. In particular, anandamide (20:4, N-6) can be biosynthesized from arachidonic acid. Anandamide (20:4, N-6) is also a parent compound for other transformation products, including but not limited to, N-arachidonoylethanolamine phosphate(2-), N-[(5Z,8Z,14Z)-11,12-epoxyicosatrienoyl]ethanolamine, and O-oleoylanandamide.	http://www.hmdb.ca/metabolites/HMDB0004080

Androsterone sulfate ; HMDB0002759	5alpha-Androstane-3alpha-ol-17-one sulfate, also known as 3alpha-hydroxy-5alpha-androstan-17-one 3-sulfate or 5-androstane-3-ol-17-one sulfuric acid, belongs to the class of organic compounds known as sulfated steroids. These are sterol lipids containing a sulfate group attached to the steroid skeleton. 5alpha-Androstane-3alpha-ol-17-one sulfate is considered to be a practically insoluble (in water) and relatively neutral molecule. 5alpha-Androstane-3alpha-ol-17-one sulfate has been found throughout most human tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, 5alpha-androstane-3alpha-ol-17-one sulfate is primarily located in the cytoplasm, membrane (predicted from logP) and endoplasmic reticulum. In humans, 5alpha-androstane-3alpha-ol-17-one sulfate is involved in the androgen and estrogen metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0002759
Arachidic acid ; HMDB0002212	Arachidic acid, also known as eicosanoic acid or eicosanoate, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Arachidic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Arachidic acid has been detected in multiple biofluids, such as feces, blood, and urine. Within the cell, arachidic acid is primarily located in the cytoplasm, membrane (predicted from logP) and adiposome. Arachidic acid is also a parent compound for other transformation products, including but not limited to, 18-methylicosanoic acid, N-icosanoylsphingosine, and beta-D-galactosyl-(1->4)-beta-D-glucosyl-(11)-N-eicosanoylsphingosine. Outside of the human body, arachidic acid can be found in a number of food items such as nutmeg, oyster mushroom, yardlong bean, and millet. This makes arachidic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0002212

Arachidic acid ; HMDB02212	Arachidic acid, also known as eicosanoic acid or eicosanoate, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Arachidic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Arachidic acid has been detected in multiple biofluids, such as feces, blood, and urine. Within the cell, arachidic acid is primarily located in the cytoplasm, membrane (predicted from logP) and adiposome. Arachidic acid is also a parent compound for other transformation products, including but not limited to, 18-methylicosanoic acid, N-icosanoylsphingosine, and beta-D-galactosyl-(1->4)-beta-D-glucosyl-(11)-N-eicosanoylsphingosine. Outside of the human body, arachidic acid can be found in a number of food items such as nutmeg, oyster mushroom, yardlong bean, and millet. This makes arachidic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0002212

Arachidonic acid ; HMDB0001043	Arachidonic acid, also known as arachidonate or AA, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Arachidonic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Arachidonic acid has been found throughout most human tissues, and has also been detected in most biofluids, including urine, cerebrospinal fluid, feces, and blood. Arachidonic acid can be found anywhere throughout the human cell, such as in adiposome, cytoplasm, endoplasmic reticulum, and membrane (predicted from logP). Arachidonic acid participates in a number of enzymatic reactions. In particular, Arachidonic acid can be biosynthesized from 8,11,14-eicosatrienoic acid through its interaction with the enzyme fatty acid desaturase 1. In addition, Arachidonic acid can be converted into adrenic acid through its interaction with the enzyme elongation OF very long chain fatty acids protein 5. In humans, arachidonic acid is involved in the tolmetin action pathway, the indomethacin action pathway, the acetaminophen action pathway, and the nabumetone action pathway. Arachidonic acid is also involved in a couple of metabolic disorders, which include leukotriene C4 synthesis deficiency and the tiaprofenic Acid action pathway. Outside of the human body, arachidonic acid can be found in a number of food items such as yellow zucchini, radish, garfish, and carrot. This makes arachidonic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0001043

Arachidonic acid ; HMDB01043	Arachidonic acid, also known as arachidonate or AA, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Arachidonic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Arachidonic acid has been found throughout most human tissues, and has also been detected in most biofluids, including urine, cerebrospinal fluid, feces, and blood. Arachidonic acid can be found anywhere throughout the human cell, such as in adiposome, cytoplasm, endoplasmic reticulum, and membrane (predicted from logP). Arachidonic acid participates in a number of enzymatic reactions. In particular, Arachidonic acid can be biosynthesized from 8,11,14-eicosatrienoic acid through its interaction with the enzyme fatty acid desaturase 1. In addition, Arachidonic acid can be converted into adrenic acid through its interaction with the enzyme elongation OF very long chain fatty acids protein 5. In humans, arachidonic acid is involved in the tolmetin action pathway, the indomethacin action pathway, the acetaminophen action pathway, and the nabumetone action pathway. Arachidonic acid is also involved in a couple of metabolic disorders, which include leukotriene C4 synthesis deficiency and the tiaprofenic Acid action pathway. Outside of the human body, arachidonic acid can be found in a number of food items such as yellow zucchini, radish, garfish, and carrot. This makes arachidonic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0001043

Arachidonyl carnitine ; HMDB0006455	Arachidonyl carnitine, also known as c20:4(n-6) carnitine, belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Arachidonyl carnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. Arachidonyl carnitine has been detected in multiple biofluids, such as blood and urine. Within the cell, arachidonyl carnitine is primarily located in the cytoplasm, membrane (predicted from logP) and mitochondria.	http://www.hmdb.ca/metabolites/HMDB0006455
Arachidonyl carnitine ; HMDB06455	Arachidonyl carnitine, also known as c20:4(n-6) carnitine, belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Arachidonyl carnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. Arachidonyl carnitine has been detected in multiple biofluids, such as blood and urine. Within the cell, arachidonyl carnitine is primarily located in the cytoplasm, membrane (predicted from logP) and mitochondria.	http://www.hmdb.ca/metabolites/HMDB0006455
Aspartylglycosamine ; HMDB0000489	Aspartylglycosamine, also known as aadg or N-adgp-asn, belongs to the class of organic compounds known as glycosylamines. Glycosylamines are compounds consisting of an amine with a beta-N-glycosidic bond to a carbohydrate, thus forming a cyclic hemiaminal ether bond (alpha-amino ether). Aspartylglycosamine is soluble (in water) and a moderately acidic compound (based on its pKa). Aspartylglycosamine has been found in human spleen tissue, and has also been primarily detected in urine. Within the cell, aspartylglycosamine is primarily located in the cytoplasm. Aspartylglycosamine has been linked to the inborn metabolic disorders including aspartylglucosaminuria.	http://www.hmdb.ca/metabolites/HMDB0000489

Asymmetric dimethylarginine ; HMDB0001539	Dimethyl-L-arginine, also known as adma, belongs to the class of organic compounds known as arginine and derivatives. Arginine and derivatives are compounds containing arginine or a derivative thereof resulting from reaction of arginine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. Dimethyl-L-arginine exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). Dimethyl-L-arginine has been found in human liver and kidney tissues, and has also been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid. Within the cell, dimethyl-L-arginine is primarily located in the cytoplasm and mitochondria. Dimethyl-L-arginine exists in all eukaryotes, ranging from yeast to humans. Dimethyl-L-arginine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001539
Asymmetric dimethylarginine ; HMDB01539	Dimethyl-L-arginine, also known as adma, belongs to the class of organic compounds known as arginine and derivatives. Arginine and derivatives are compounds containing arginine or a derivative thereof resulting from reaction of arginine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. Dimethyl-L-arginine exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). Dimethyl-L-arginine has been found in human liver and kidney tissues, and has also been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid. Within the cell, dimethyl-L-arginine is primarily located in the cytoplasm and mitochondria. Dimethyl-L-arginine exists in all eukaryotes, ranging from yeast to humans. Dimethyl-L-arginine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001539

Atenolol ; HMDB0001924	Atenolol, also known as tenormin or unibloc, belongs to the class of organic compounds known as phenylacetamides. These are amide derivatives of phenylacetic acids. Atenolol is a drug which is used for the management of hypertention and long-term management of patients with angina pectoris. Atenolol exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Atenolol has been primarily detected in blood. In humans, atenolol is involved in the atenolol action pathway. Atenolol is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001924
Atenolol ; HMDB01924	Atenolol, also known as tenormin or unibloc, belongs to the class of organic compounds known as phenylacetamides. These are amide derivatives of phenylacetic acids. Atenolol is a drug which is used for the management of hypertention and long-term management of patients with angina pectoris. Atenolol exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Atenolol has been primarily detected in blood. In humans, atenolol is involved in the atenolol action pathway. Atenolol is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001924

Azelaic acid ; HMDB0000784	Azelaic acid, also known as azelex or finacea, belongs to the class of organic compounds known as medium-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 4 and 12 carbon atoms. Azelaic acid is a drug which is used for the topical treatment of mild-to-moderate inflammatory acne vulgaris. Azelaic acid exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Azelaic acid has been found in human prostate and skin tissues, and has also been detected in most biofluids, including blood, breast milk, saliva, and feces. Within the cell, azelaic acid is primarily located in the cytoplasm and adiposome. Azelaic acid is also a parent compound for other transformation products, including but not limited to, 1-O-hexadecyl-2-(8-carboxyoctanoyl)-sn-glycero-3-phosphocholine, 1-palmitoyl-2-azelaoyl-sn-glycero-3-phosphocholine, and 1-azelaoyl-sn-glycero-3-phosphocholine. Azelaic acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000784

Azelaic acid ; HMDB00784	Azelaic acid, also known as azelex or finacea, belongs to the class of organic compounds known as medium-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 4 and 12 carbon atoms. Azelaic acid is a drug which is used for the topical treatment of mild-to-moderate inflammatory acne vulgaris. Azelaic acid exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Azelaic acid has been found in human prostate and skin tissues, and has also been detected in most biofluids, including blood, breast milk, saliva, and feces. Within the cell, azelaic acid is primarily located in the cytoplasm and adiposome. Azelaic acid is also a parent compound for other transformation products, including but not limited to, 1-O-hexadecyl-2-(8-carboxyoctanoyl)-sn-glycero-3-phosphocholine, 1-palmitoyl-2-azelaoyl-sn-glycero-3-phosphocholine, and 1-azelaoyl-sn-glycero-3-phosphocholine. Azelaic acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000784
Benzoic acid ; HMDB0001870	Benzoic acid, also known as benzoate or E210, belongs to the class of organic compounds known as benzoic acids. These are organic Compounds containing a benzene ring which bears at least one carboxyl group. Benzoic acid exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Benzoic acid has been found throughout most human tissues, and has also been detected in most biofluids, including saliva, feces, urine, and sweat. Within the cell, benzoic acid is primarily located in the cytoplasm and endoplasmic reticulum. Benzoic acid exists in all eukaryotes, ranging from yeast to humans. Benzoic acid is also a parent compound for other transformation products, including but not limited to, 4-(2-carboxyphenyl)-2-oxobut-3-enoic acid, 4-hydroxy-3-octaprenylbenzoic acid, and hydroxybenzoic acid. Benzoic acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001870

beta-Alanine ; HMDB0000056	Beta-Alanine, also known as 3-aminopropanoate or bala, belongs to the class of organic compounds known as beta amino acids and derivatives. These are amino acids having a (-NH2) group attached to the beta carbon atom. Beta-Alanine exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Beta-Alanine has been found throughout most human tissues, and has also been detected in most biofluids, including feces, blood, saliva, and urine. Within the cell, Beta-alanine is primarily located in the cytoplasm and mitochondria. Beta-Alanine exists in all eukaryotes, ranging from yeast to humans. Beta-Alanine participates in a number of enzymatic reactions. In particular, Beta-Alanine and oxoglutaric acid can be converted into malonic semialdehyde and L-glutamic acid through its interaction with the enzyme 4-aminobutyrate aminotransferase, mitochondrial. Furthermore, Beta-Alanine can be biosynthesized from L-aspartic acid through the action of the enzyme glutamate decarboxylase 1. Furthermore, Beta-Alanine can be biosynthesized from ureidopropionic acid through its interaction with the enzyme Beta-ureidopropionase. Finally, Beta-Alanine and 3-methylhistidine can be biosynthesized from anserine; which is catalyzed by the enzyme Beta-ala-his dipeptidase. In humans, Beta-alanine is involved in the aspartate metabolism pathway, the pyrimidine metabolism pathway, the histidine metabolism pathway, and the Beta-alanine metabolism pathway. Beta-Alanine is also involved in several metabolic disorders, some of which include dihydropyrimidinase deficiency, Beta ureidopropionase deficiency, the histidinemia pathway, and the canavan disease pathway. Outside of the human body, Beta-alanine can be found in a number of food items such as barley, banana, ceylon cinnamon, and green bean. This makes Beta-alanine a potential biomarker for the consumption of these food products. Beta-Alanine is a	http://www.hmdb.ca/metabolites/HMDB0000056

	potentially toxic compound. Beta-Alanine has been found to be associated with the diseases known as methylmalonate semialdehyde dehydrogenase deficiency; beta-alanine has also been linked to the inborn metabolic disorders including hyper beta-alaninemia.	
beta-Cryptoxanthin ; HMDB0033844	Beta-Cryptoxanthin, also known as 3-hydroxy-b-carotene or b,b-caroten-3-ol, belongs to the class of organic compounds known as xanthophylls. These are carotenoids containing an oxygenated carotene backbone. Carotenes are characterized by the presence of two end-groups (mostly cyclohexene rings, but also cyclopentene rings or acyclic groups) linked by a long branched alkyl chain. Carotenes belonging form a subgroup of the carotenoids family. Xanthophylls arise by oxygenation of the carotene backbone. Beta-Cryptoxanthin exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Beta-Cryptoxanthin has been detected in multiple biofluids, such as blood and breast milk. Within the cell, Beta-cryptoxanthin is primarily located in the membrane (predicted from logP) and cytoplasm. Outside of the human body, Beta-cryptoxanthin can be found in a number of food items such as cowpea, garlic, mandarin orange (clementine, tangerine), and sake. This makes Beta-cryptoxanthin a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0033844

Betaine ; HMDB0000043	Betaine, also known as glycine betaine or acidin pepsin, belongs to the class of organic compounds known as alpha amino acids. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon). Betaine exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). Betaine has been found throughout most human tissues, and has also been detected in most biofluids, including blood, breast milk, saliva, and urine. Within the cell, betaine is primarily located in the cytoplasm and mitochondria. Betaine exists in all eukaryotes, ranging from yeast to humans. Betaine participates in a number of enzymatic reactions. In particular, Betaine and homocysteine can be converted into dimethylglycine and L-methionine; which is mediated by the enzyme betaine--homocysteine S-methyltransferase 1. Furthermore, Betaine can be biosynthesized from betaine aldehyde through the action of the enzyme Alpha-aminoadipic semialdehyde dehydrogenase. Furthermore, Betaine and homocysteine can be converted into dimethylglycine and L-methionine; which is mediated by the enzyme betaine--homocysteine S-methyltransferase 1. Finally, Betaine can be biosynthesized from choline; which is catalyzed by the enzyme choline dehydrogenase, mitochondrial. In humans, betaine is involved in the sarcosine oncometabolite pathway, the methionine metabolism pathway, the glycine and serine metabolism pathway, and the betaine metabolism pathway. Betaine is also involved in several metabolic disorders, some of which include the homocystinuria-megaloblastic anemia due to defect in cobalamin metabolism, CBLG complementation type pathway, the sarcosinemia pathway, glycine N-methyltransferase deficiency, and cystathionine Beta-synthase deficiency. Betaine is a bland tasting compound that	http://www.hmdb.ca/metabolites/HMDB0000043

	can be found in a number of food items such as shiitake, garden tomato (var.), wax gourd, and olive. This makes betaine a potential biomarker for the consumption of these food products.	

Betaine ; HMDB00043	Betaine, also known as glycine betaine or acidin pepsin, belongs to the class of organic compounds known as alpha amino acids. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon). Betaine exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). Betaine has been found throughout most human tissues, and has also been detected in most biofluids, including blood, breast milk, saliva, and urine. Within the cell, betaine is primarily located in the cytoplasm and mitochondria. Betaine exists in all eukaryotes, ranging from yeast to humans. Betaine participates in a number of enzymatic reactions. In particular, Betaine and homocysteine can be converted into dimethylglycine and L-methionine; which is mediated by the enzyme betaine--homocysteine S-methyltransferase 1. Furthermore, Betaine can be biosynthesized from betaine aldehyde through the action of the enzyme Alpha-aminoadipic semialdehyde dehydrogenase. Furthermore, Betaine and homocysteine can be converted into dimethylglycine and L-methionine; which is mediated by the enzyme betaine--homocysteine S-methyltransferase 1. Finally, Betaine can be biosynthesized from choline; which is catalyzed by the enzyme choline dehydrogenase, mitochondrial. In humans, betaine is involved in the sarcosine oncometabolite pathway, the methionine metabolism pathway, the glycine and serine metabolism pathway, and the betaine metabolism pathway. Betaine is also involved in several metabolic disorders, some of which include the homocystinuria-megaloblastic anemia due to defect in cobalamin metabolism, CBLG complementation type pathway, the sarcosinemia pathway, glycine N-methyltransferase deficiency, and cystathionine Beta-synthase deficiency. Betaine is a bland tasting compound that	http://www.hmdb.ca/metabolites/HMDB0000043

	can be found in a number of food items such as shiitake, garden tomato (var.), wax gourd, and olive. This makes betaine a potential biomarker for the consumption of these food products.	
Betonicine ; HMDB0029412	Betonicine, also known as achillein, belongs to the class of organic compounds known as proline and derivatives. Proline and derivatives are compounds containing proline or a derivative thereof resulting from reaction of proline at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. Betonicine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Betonicine has been primarily detected in urine. Within the cell, betonicine is primarily located in the cytoplasm. Betonicine can be biosynthesized from trans-4-hydroxy-L-proline zwitterion. Outside of the human body, betonicine can be found in herbs and spices and pulses. This makes betonicine a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0029412
Bilirubin ; HMDB0000054	4E,15Z-Bilirubin ixa belongs to the class of organic compounds known as bilirubins. These are organic compounds containing a dicarboxylic acyclic tetrapyrrole derivative. 4E,15Z-Bilirubin ixa is considered to be a practically insoluble (in water) and relatively neutral molecule. 4E,15Z-Bilirubin ixa has been primarily detected in blood. Within the cell, 4E,15Z-bilirubin ixa is primarily located in the cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000054
Bilirubin ; HMDB00054	4E,15Z-Bilirubin ixa belongs to the class of organic compounds known as bilirubins. These are organic compounds containing a dicarboxylic acyclic tetrapyrrole derivative. 4E,15Z-Bilirubin ixa is considered to be a practically insoluble (in water) and relatively neutral molecule. 4E,15Z-Bilirubin ixa has been primarily detected in blood. Within the cell, 4E,15Z-bilirubin ixa is primarily located in the cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000054

Biliverdin ; HMDB0001008	Biliverdin, also known as biliverdin ix or dehydrobilirubin, belongs to the class of organic compounds known as bilirubins. These are organic compounds containing a dicarboxylic acyclic tetrapyrrole derivative. Biliverdin is considered to be a practically insoluble (in water) and relatively neutral molecule. Biliverdin has been found in human prostate and placenta tissues, and has also been detected in multiple biofluids, such as feces and blood. Within the cell, biliverdin is primarily located in the cytoplasm, membrane (predicted from logP) and nucleus. In humans, biliverdin is involved in the porphyrin metabolism pathway. Biliverdin is also involved in several metabolic disorders, some of which include the acute intermittent porphyria pathway, congenital erythropoietic porphyria (cep) or gunther disease pathway, the porphyria variegata (PV) pathway, and the hereditary coproporphyria (HCP) pathway.	http://www.hmdb.ca/metabolites/HMDB0001008
Biliverdin ; HMDB01008	Biliverdin, also known as biliverdin ix or dehydrobilirubin, belongs to the class of organic compounds known as bilirubins. These are organic compounds containing a dicarboxylic acyclic tetrapyrrole derivative. Biliverdin is considered to be a practically insoluble (in water) and relatively neutral molecule. Biliverdin has been found in human prostate and placenta tissues, and has also been detected in multiple biofluids, such as feces and blood. Within the cell, biliverdin is primarily located in the cytoplasm, membrane (predicted from logP) and nucleus. In humans, biliverdin is involved in the porphyrin metabolism pathway. Biliverdin is also involved in several metabolic disorders, some of which include the acute intermittent porphyria pathway, congenital erythropoietic porphyria (cep) or gunther disease pathway, the porphyria variegata (PV) pathway, and the hereditary coproporphyria (HCP) pathway.	http://www.hmdb.ca/metabolites/HMDB0001008

Bromine ; HMDB0031434	Bromine, also known as brom or BR2, belongs to the class of inorganic compounds known as homogeneous halogens. These are inorganic non-metallic compounds in which the largest atom is a nobel gas. Outside of the human body, bromine can be found in a number of food items such as orange bell pepper, bilberry, common grape, and white cabbage. This makes bromine a potential biomarker for the consumption of these food products. Bromine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0031434
Butyrylcarnitine ; HMDB0002013	, also known as butyrylcarnitine, belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, is considered to be a fatty ester lipid molecule. is considered to be a practically insoluble (in water) and relatively neutral molecule. has been primarily detected in saliva, urine, blood, and cerebrospinal fluid. Within the cell, is primarily located in the membrane (predicted from logP) and cytoplasm. has been linked to the inborn metabolic disorders including glutaric aciduria II.	http://www.hmdb.ca/metabolites/HMDB0002013
Butyrylcarnitine ; HMDB02013	, also known as butyrylcarnitine, belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, is considered to be a fatty ester lipid molecule. is considered to be a practically insoluble (in water) and relatively neutral molecule. has been primarily detected in saliva, urine, blood, and cerebrospinal fluid. Within the cell, is primarily located in the membrane (predicted from logP) and cytoplasm. has been linked to the inborn metabolic disorders including glutaric aciduria II.	http://www.hmdb.ca/metabolites/HMDB0002013

Caffeine ; HMDB0001847	Caffeine, also known as coffein or theine, belongs to the class of organic compounds known as xanthines. These are purine derivatives with a ketone group conjugated at carbons 2 and 6 of the purine moiety. Caffeine is a drug which is used for management of fatigue, orthostatic hypotension, and for the short term treatment of apnea of prematurity in infants. Caffeine exists as a solid, soluble (in water), and an extremely weak basic (essentially neutral) compound (based on its pKa). Caffeine has been found throughout most human tissues, and has also been detected in most biofluids, including saliva, feces, cerebrospinal fluid, and urine. Within the cell, caffeine is primarily located in the cytoplasm. Caffeine participates in a number of enzymatic reactions. In particular, Caffeine can be converted into paraxanthine and formaldehyde through its interaction with the enzyme cytochrome P450 1A2. In addition, Caffeine can be converted into theobromine and formaldehyde; which is catalyzed by the enzymes cytochrome P450 1A2 and cytochrome P450 2E1. In humans, caffeine is involved in the caffeine metabolism pathway. Outside of the human body, caffeine can be found in pulses. This makes caffeine a potential biomarker for the consumption of this food product. Caffeine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001847

Caffeine ; HMDB01847	Caffeine, also known as coffein or theine, belongs to the class of organic compounds known as xanthines. These are purine derivatives with a ketone group conjugated at carbons 2 and 6 of the purine moiety. Caffeine is a drug which is used for management of fatigue, orthostatic hypotension, and for the short term treatment of apnea of prematurity in infants. Caffeine exists as a solid, soluble (in water), and an extremely weak basic (essentially neutral) compound (based on its pKa). Caffeine has been found throughout most human tissues, and has also been detected in most biofluids, including saliva, feces, cerebrospinal fluid, and urine. Within the cell, caffeine is primarily located in the cytoplasm. Caffeine participates in a number of enzymatic reactions. In particular, Caffeine can be converted into paraxanthine and formaldehyde through its interaction with the enzyme cytochrome P450 1A2. In addition, Caffeine can be converted into theobromine and formaldehyde; which is catalyzed by the enzymes cytochrome P450 1A2 and cytochrome P450 2E1. In humans, caffeine is involved in the caffeine metabolism pathway. Outside of the human body, caffeine can be found in pulses. This makes caffeine a potential biomarker for the consumption of this food product. Caffeine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001847

Campesterol ; HMDB0002869	Campesterol belongs to the class of organic compounds known as ergosterols and derivatives. These are steroids containing ergosta-5,7,22-trien-3beta-ol or a derivative thereof, which is based on the 3beta-hydroxylated ergostane skeleton. Thus, campesterol is considered to be a sterol lipid molecule. Campesterol exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Campesterol has been found in human kidney, muscle and hepatic tissue tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, campesterol is primarily located in the membrane (predicted from logP) and cytoplasm. Campesterol can be biosynthesized from campestane.	http://www.hmdb.ca/metabolites/HMDB0002869
Campesterol ; HMDB02869	Campesterol belongs to the class of organic compounds known as ergosterols and derivatives. These are steroids containing ergosta-5,7,22-trien-3beta-ol or a derivative thereof, which is based on the 3beta-hydroxylated ergostane skeleton. Thus, campesterol is considered to be a sterol lipid molecule. Campesterol exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Campesterol has been found in human kidney, muscle and hepatic tissue tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, campesterol is primarily located in the membrane (predicted from logP) and cytoplasm. Campesterol can be biosynthesized from campestane.	http://www.hmdb.ca/metabolites/HMDB0002869

Capric acid ; HMDB0000511	Capric acid, also known as decanoate or decylic acid, belongs to the class of organic compounds known as medium-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 4 and 12 carbon atoms. Capric acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Capric acid has been found in human epidermis tissue, and has also been detected in most biofluids, including saliva, sweat, feces, and breast milk. Within the cell, capric acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. Capric acid exists in all eukaryotes, ranging from yeast to humans. Capric acid participates in a number of enzymatic reactions. In particular, Capric acid can be biosynthesized from trans-dec-2-enoic acid; which is catalyzed by the enzyme fatty acid synthase. enoyl reductase domain. Furthermore, Capric acid and malonic acid can be converted into 3-oxododecanoic acid; which is mediated by the enzyme fatty acid synthase. Beta ketoacyl synthase domain. Furthermore, Capric acid can be biosynthesized from trans-dec-2-enoic acid through the action of the enzyme fatty acid synthase. enoyl reductase domain. Finally, Capric acid and malonic acid can be converted into 3-oxododecanoic acid; which is catalyzed by the enzyme fatty acid synthase. Beta ketoacyl synthase domain. In humans, capric acid is involved in fatty acid biosynthesis pathway and the Beta oxidation OF very long chain fatty acids pathway. Outside of the human body, capric acid can be found in a number of food items such as daikon radish, thistle, sacred lotus, and garden tomato (var.). This makes capric acid a potential biomarker for the consumption of these food products. Capric acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000511

Capric acid ; HMDB00511	Capric acid, also known as decanoate or decylic acid, belongs to the class of organic compounds known as medium-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 4 and 12 carbon atoms. Capric acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Capric acid has been found in human epidermis tissue, and has also been detected in most biofluids, including saliva, sweat, feces, and breast milk. Within the cell, capric acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. Capric acid exists in all eukaryotes, ranging from yeast to humans. Capric acid participates in a number of enzymatic reactions. In particular, Capric acid can be biosynthesized from trans-dec-2-enoic acid; which is catalyzed by the enzyme fatty acid synthase. enoyl reductase domain. Furthermore, Capric acid and malonic acid can be converted into 3-oxododecanoic acid; which is mediated by the enzyme fatty acid synthase. Beta ketoacyl synthase domain. Furthermore, Capric acid can be biosynthesized from trans-dec-2-enoic acid through the action of the enzyme fatty acid synthase. enoyl reductase domain. Finally, Capric acid and malonic acid can be converted into 3-oxododecanoic acid; which is catalyzed by the enzyme fatty acid synthase. Beta ketoacyl synthase domain. In humans, capric acid is involved in fatty acid biosynthesis pathway and the Beta oxidation OF very long chain fatty acids pathway. Outside of the human body, capric acid can be found in a number of food items such as daikon radish, thistle, sacred lotus, and garden tomato (var.). This makes capric acid a potential biomarker for the consumption of these food products. Capric acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000511

Caproate (6:0) ; HMDB0061883	Caproic acid, also known as hexanoate or caproate, belongs to the class of organic compounds known as medium-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 4 and 12 carbon atoms. Caproic acid exists as a liquid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). Caproic acid has been detected in most biofluids, including cerebrospinal fluid, feces, sweat, and urine. Within the cell, caproic acid is primarily located in the cytoplasm and adiposome. Caproic acid exists in all eukaryotes, ranging from yeast to humans. In humans, caproic acid is involved in fatty acid biosynthesis pathway and the Beta oxidation OF very long chain fatty acids pathway. Caproic acid is also involved in a couple of metabolic disorders, which include the mitochondrial Beta-oxidation OF short chain saturated fatty acids pathway and short-chain 3-hydroxyacyl-CoA dehydrogenase deficiency (schad). Outside of the human body, caproic acid can be found in a number of food items such as sweet basil, wild carrot, agar, and wax gourd. This makes caproic acid a potential biomarker for the consumption of these food products. Caproic acid is a potentially toxic compound. Caproic acid has been linked to several inborn metabolic disorders including celiac disease and medium chain acyl-CoA dehydrogenase deficiency.	http://www.hmdb.ca/metabolites/HMDB0061883

Caprylic acid ; HMDB0000482	Caprylic acid, also known as 8:0 or octylic acid, belongs to the class of organic compounds known as medium-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 4 and 12 carbon atoms. Caprylic acid exists as a liquid and is considered to be practically insoluble (in water) and relatively neutral. Caprylic acid has been found in human epidermis tissue, and has also been detected in most biofluids, including breast milk, feces, urine, and sweat. Within the cell, caprylic acid is primarily located in the cytoplasm, membrane (predicted from logP) and adiposome. Caprylic acid exists in all eukaryotes, ranging from yeast to humans. Caprylic acid participates in a number of enzymatic reactions. In particular, Caprylic acid can be biosynthesized from trans-2-octenoic acid; which is catalyzed by the enzyme fatty acid synthase. enoyl reductase domain. Furthermore, Caprylic acid and malonic acid can be converted into 3-oxodecanoic acid through its interaction with the enzyme fatty acid synthase. Beta ketoacyl synthase domain. Furthermore, Caprylic acid can be biosynthesized from trans-2-octenoic acid; which is mediated by the enzyme fatty acid synthase. enoyl reductase domain. Finally, Caprylic acid and malonic acid can be converted into 3-oxodecanoic acid through the action of the enzyme fatty acid synthase. Beta ketoacyl synthase domain. In humans, caprylic acid is involved in the Beta oxidation OF very long chain fatty acids pathway and fatty acid biosynthesis pathway. Caprylic acid is also involved in the metabolic disorder called the mitochondrial Beta-oxidation OF short chain saturated fatty acids pathway. Outside of the human body, caprylic acid can be found in tea. This makes caprylic acid a potential biomarker for the consumption of this food product. Caprylic acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000482

Caprylic acid ; HMDB00482	Caprylic acid, also known as 8:0 or octylic acid, belongs to the class of organic compounds known as medium-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 4 and 12 carbon atoms. Caprylic acid exists as a liquid and is considered to be practically insoluble (in water) and relatively neutral. Caprylic acid has been found in human epidermis tissue, and has also been detected in most biofluids, including breast milk, feces, urine, and sweat. Within the cell, caprylic acid is primarily located in the cytoplasm, membrane (predicted from logP) and adiposome. Caprylic acid exists in all eukaryotes, ranging from yeast to humans. Caprylic acid participates in a number of enzymatic reactions. In particular, Caprylic acid can be biosynthesized from trans-2-octenoic acid; which is catalyzed by the enzyme fatty acid synthase. enoyl reductase domain. Furthermore, Caprylic acid and malonic acid can be converted into 3-oxodecanoic acid through its interaction with the enzyme fatty acid synthase. Beta ketoacyl synthase domain. Furthermore, Caprylic acid can be biosynthesized from trans-2-octenoic acid; which is mediated by the enzyme fatty acid synthase. enoyl reductase domain. Finally, Caprylic acid and malonic acid can be converted into 3-oxodecanoic acid through the action of the enzyme fatty acid synthase. Beta ketoacyl synthase domain. In humans, caprylic acid is involved in the Beta oxidation OF very long chain fatty acids pathway and fatty acid biosynthesis pathway. Caprylic acid is also involved in the metabolic disorder called the mitochondrial Beta-oxidation OF short chain saturated fatty acids pathway. Outside of the human body, caprylic acid can be found in tea. This makes caprylic acid a potential biomarker for the consumption of this food product. Caprylic acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000482

Capryloylglycine ; HMDB0000832	Capryloylglycine, also known as 2-octanamidoacetate or N-octanoyl-glycine, belongs to the class of organic compounds known as n-acyl-alpha amino acids. N-acyl-alpha amino acids are compounds containing an alpha amino acid which bears an acyl group at its terminal nitrogen atom. Capryloylglycine is considered to be a practically insoluble (in water) and relatively neutral molecule. Capryloylglycine has been primarily detected in urine. Within the cell, capryloylglycine is primarily located in the membrane (predicted from logP). Capryloylglycine can be biosynthesized from octanoic acid and glycine.	http://www.hmdb.ca/metabolites/HMDB0000832
Carboxy-ibuprofen ; HMDB0060564	Carboxy-ibuprofen is a metabolite of ibuprofen. Ibuprofen is a nonsteroidal anti-inflammatory drug (NSAID) used for relief of symptoms of arthritis, fever, as an analgesic (pain reliever), especially where there is an inflammatory component, and dysmenorrhea. Ibuprofen is known to have an antiplatelet effect, though it is relatively mild and somewhat short-lived when compared with aspirin or other better-known antiplatelet drugs. (Wikipedia)	http://www.hmdb.ca/metabolites/HMDB0060564

Carnosine ; HMDB0000033	Carnosine, also known as b-alanylhistidine or ignotine, belongs to the class of organic compounds known as hybrid peptides. Hybrid peptides are compounds containing at least two different types of amino acids (alpha, beta, gamma, delta) linked to each other through a peptide bond. Carnosine exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Carnosine has been found throughout most human tissues, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, carnosine is primarily located in the cytoplasm. Carnosine exists in all eukaryotes, ranging from yeast to humans. Carnosine participates in a number of enzymatic reactions. In particular, Carnosine can be converted into Beta-alanine and L-histidine; which is catalyzed by the enzyme Beta-ala-his dipeptidase. In addition, Carnosine can be converted into Beta-alanine and L-histidine through the action of the enzyme Beta-ala-his dipeptidase. In humans, carnosine is involved in the histidine metabolism pathway and the Beta-alanine metabolism pathway. Carnosine is also involved in several metabolic disorders, some of which include the carnosinuria, carnosinemia pathway, the histidinemia pathway, gaba-transaminase deficiency, and ureidopropionase deficiency. Carnosine has been found to be associated with the diseases known as alzheimer's disease; carnosine has also been linked to the inborn metabolic disorders including carnosinuria.	http://www.hmdb.ca/metabolites/HMDB0000033

CE(14:0) ; HMDB0006725	14:0 Cholesteryl ester, also known as cholesteryl myristate or 1-myristoyl-cholesterol, belongs to the class of organic compounds known as cholesteryl esters. Cholesteryl esters are compounds containing an esterified cholestane moiety. Thus, 14:0 cholesteryl ester is considered to be a sterol lipid molecule. 14:0 Cholesteryl ester is considered to be a practically insoluble (in water) and relatively neutral molecule. 14:0 Cholesteryl ester has been found in human hepatic tissue tissue, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, 14:0 cholesteryl ester is primarily located in the membrane (predicted from logP) and cytoplasm. 14:0 Cholesteryl ester exists in all eukaryotes, ranging from yeast to humans.	http://www.hmdb.ca/metabolites/HMDB0006725
CE(14:0) ; HMDB06725	14:0 Cholesteryl ester, also known as cholesteryl myristate or 1-myristoyl-cholesterol, belongs to the class of organic compounds known as cholesteryl esters. Cholesteryl esters are compounds containing an esterified cholestane moiety. Thus, 14:0 cholesteryl ester is considered to be a sterol lipid molecule. 14:0 Cholesteryl ester is considered to be a practically insoluble (in water) and relatively neutral molecule. 14:0 Cholesteryl ester has been found in human hepatic tissue tissue, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, 14:0 cholesteryl ester is primarily located in the membrane (predicted from logP) and cytoplasm. 14:0 Cholesteryl ester exists in all eukaryotes, ranging from yeast to humans.	http://www.hmdb.ca/metabolites/HMDB0006725

CE(16:0) ; HMDB0000885	16:0 Cholesteryl ester, also known as CE or cholesterol palmitate, belongs to the class of organic compounds known as cholesteryl esters. Cholesteryl esters are compounds containing an esterified cholestane moiety. Thus, 16:0 cholesteryl ester is considered to be a sterol lipid molecule. 16:0 Cholesteryl ester exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. 16:0 Cholesteryl ester has been found in human hepatic tissue tissue, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, 16:0 cholesteryl ester is primarily located in the membrane (predicted from logP) and cytoplasm. 16:0 Cholesteryl ester exists in all eukaryotes, ranging from yeast to humans. 16:0 Cholesteryl ester has been linked to the inborn metabolic disorders including hypercholesterolemia.	http://www.hmdb.ca/metabolites/HMDB0000885
CE(16:0) ; HMDB00885	16:0 Cholesteryl ester, also known as CE or cholesterol palmitate, belongs to the class of organic compounds known as cholesteryl esters. Cholesteryl esters are compounds containing an esterified cholestane moiety. Thus, 16:0 cholesteryl ester is considered to be a sterol lipid molecule. 16:0 Cholesteryl ester exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. 16:0 Cholesteryl ester has been found in human hepatic tissue tissue, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, 16:0 cholesteryl ester is primarily located in the membrane (predicted from logP) and cytoplasm. 16:0 Cholesteryl ester exists in all eukaryotes, ranging from yeast to humans. 16:0 Cholesteryl ester has been linked to the inborn metabolic disorders including hypercholesterolemia.	http://www.hmdb.ca/metabolites/HMDB0000885

CE(16:1(9Z)) ; HMDB0000658	16:1 Cholesteryl ester, also known as cholesteryl 9-palmitoleate or 1-palmitoleoyl-cholesterol, belongs to the class of organic compounds known as cholesteryl esters. Cholesteryl esters are compounds containing an esterified cholestane moiety. Thus, 16:1 cholesteryl ester is considered to be a sterol lipid molecule. 16:1 Cholesteryl ester is considered to be a practically insoluble (in water) and relatively neutral molecule. 16:1 Cholesteryl ester has been found in human hepatic tissue tissue, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, 16:1 cholesteryl ester is primarily located in the membrane (predicted from logP) and cytoplasm. 16:1 Cholesteryl ester can be biosynthesized from (9Z)-hexadecenoic acid.	http://www.hmdb.ca/metabolites/HMDB0000658
CE(16:1(9Z)) ; HMDB00658	16:1 Cholesteryl ester, also known as cholesteryl 9-palmitoleate or 1-palmitoleoyl-cholesterol, belongs to the class of organic compounds known as cholesteryl esters. Cholesteryl esters are compounds containing an esterified cholestane moiety. Thus, 16:1 cholesteryl ester is considered to be a sterol lipid molecule. 16:1 Cholesteryl ester is considered to be a practically insoluble (in water) and relatively neutral molecule. 16:1 Cholesteryl ester has been found in human hepatic tissue tissue, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, 16:1 cholesteryl ester is primarily located in the membrane (predicted from logP) and cytoplasm. 16:1 Cholesteryl ester can be biosynthesized from (9Z)-hexadecenoic acid.	http://www.hmdb.ca/metabolites/HMDB0000658

CE(18:0) ; HMDB0010368	Ce(18:0), also known as ce(18:0/0:0), belongs to the class of organic compounds known as cholesteryl esters. Cholesteryl esters are compounds containing an esterified cholestane moiety. Ce(18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. Ce(18:0) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, ce(18:0) is primarily located in the membrane (predicted from logP) and cytoplasm. Ce(18:0) exists in all eukaryotes, ranging from yeast to humans. In humans, ce(18:0) is involved in the ibandronate action pathway, the zoledronate action pathway, the lovastatin action pathway, and the simvastatin action pathway. Ce(18:0) is also involved in several metabolic disorders, some of which include the cholesteryl ester storage disease pathway, the wolman disease pathway, the mevalonic aciduria pathway, and lysosomal acid lipase deficiency (wolman disease).	http://www.hmdb.ca/metabolites/HMDB0010368

CE(18:0) ; HMDB10368	Ce(18:0), also known as ce(18:0/0:0), belongs to the class of organic compounds known as cholesteryl esters. Cholesteryl esters are compounds containing an esterified cholestane moiety. Ce(18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. Ce(18:0) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, ce(18:0) is primarily located in the membrane (predicted from logP) and cytoplasm. Ce(18:0) exists in all eukaryotes, ranging from yeast to humans. In humans, ce(18:0) is involved in the ibandronate action pathway, the zoledronate action pathway, the lovastatin action pathway, and the simvastatin action pathway. Ce(18:0) is also involved in several metabolic disorders, some of which include the cholesteryl ester storage disease pathway, the wolman disease pathway, the mevalonic aciduria pathway, and lysosomal acid lipase deficiency (wolman disease).	http://www.hmdb.ca/metabolites/HMDB0010368
CE(18:1(9Z)) ; HMDB0000918	Ce(18:1(9Z)), also known as ce(18:1) or ce(18:1n9/0:0), belongs to the class of organic compounds known as cholesteryl esters. Cholesteryl esters are compounds containing an esterified cholestane moiety. Ce(18:1(9Z)) exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Ce(18:1(9Z)) has been found throughout most human tissues, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, ce(18:1(9Z)) is primarily located in the membrane (predicted from logP), myelin sheath and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000918

CE(18:1(9Z)) ; HMDB00918	Ce(18:1(9Z)), also known as ce(18:1) or ce(18:1n9/0:0), belongs to the class of organic compounds known as cholesteryl esters. Cholesteryl esters are compounds containing an esterified cholestane moiety. Ce(18:1(9Z)) exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Ce(18:1(9Z)) has been found throughout most human tissues, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, ce(18:1(9Z)) is primarily located in the membrane (predicted from logP), myelin sheath and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000918
CE(18:2(9Z,12Z)) ; HMDB0000610	Ce(18:2(9Z,12Z)), also known as ce(18:2) or ce(18:2n6/0:0), belongs to the class of organic compounds known as cholesteryl esters. Cholesteryl esters are compounds containing an esterified cholestane moiety. Ce(18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. Ce(18:2(9Z,12Z)) has been found in human hepatic tissue tissue, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, ce(18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000610
CE(18:2(9Z,12Z)) ; HMDB00610	Ce(18:2(9Z,12Z)), also known as ce(18:2) or ce(18:2n6/0:0), belongs to the class of organic compounds known as cholesteryl esters. Cholesteryl esters are compounds containing an esterified cholestane moiety. Ce(18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. Ce(18:2(9Z,12Z)) has been found in human hepatic tissue tissue, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, ce(18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000610

CE(18:3(9Z,12Z,15Z)) ; HMDB0010370	Ce(18:3(9Z,12Z,15Z)), also known as cholesterol linolenate or ce(18:3), belongs to the class of organic compounds known as cholesteryl esters. Cholesteryl esters are compounds containing an esterified cholestane moiety. Ce(18:3(9Z,12Z,15Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. Ce(18:3(9Z,12Z,15Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, ce(18:3(9Z,12Z,15Z)) is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0010370
CE(18:3(9Z,12Z,15Z)) ; HMDB10370	Ce(18:3(9Z,12Z,15Z)), also known as cholesterol linolenate or ce(18:3), belongs to the class of organic compounds known as cholesteryl esters. Cholesteryl esters are compounds containing an esterified cholestane moiety. Ce(18:3(9Z,12Z,15Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. Ce(18:3(9Z,12Z,15Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, ce(18:3(9Z,12Z,15Z)) is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0010370
CE(20:3(8Z,11Z,14Z)) ; HMDB0006736	Ce(20:3(8Z,11Z,14Z)), also known as 20:3 cholesterol ester or ce(20:3), belongs to the class of organic compounds known as cholesteryl esters. Cholesteryl esters are compounds containing an esterified cholestane moiety. Ce(20:3(8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. Ce(20:3(8Z,11Z,14Z)) has been found in human hepatic tissue tissue, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, ce(20:3(8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0006736

CE(20:3(8Z,11Z,14Z)) ; HMDB06736	Ce(20:3(8Z,11Z,14Z)), also known as 20:3 cholesterol ester or ce(20:3), belongs to the class of organic compounds known as cholesteryl esters. Cholesteryl esters are compounds containing an esterified cholestane moiety. Ce(20:3(8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. Ce(20:3(8Z,11Z,14Z)) has been found in human hepatic tissue tissue, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, ce(20:3(8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0006736
CE(20:4(5Z,8Z,11Z,14Z)) ; HMDB0006726	Ce(20:4(5Z,8Z,11Z,14Z)), also known as cholesterol arachidonate or 20:4 cholesterol ester, belongs to the class of organic compounds known as cholesteryl esters. Cholesteryl esters are compounds containing an esterified cholestane moiety. Ce(20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. Ce(20:4(5Z,8Z,11Z,14Z)) has been primarily detected in blood. Within the cell, ce(20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP).	http://www.hmdb.ca/metabolites/HMDB0006726
CE(20:4(5Z,8Z,11Z,14Z)) ; HMDB06726	Ce(20:4(5Z,8Z,11Z,14Z)), also known as cholesterol arachidonate or 20:4 cholesterol ester, belongs to the class of organic compounds known as cholesteryl esters. Cholesteryl esters are compounds containing an esterified cholestane moiety. Ce(20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. Ce(20:4(5Z,8Z,11Z,14Z)) has been primarily detected in blood. Within the cell, ce(20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP).	http://www.hmdb.ca/metabolites/HMDB0006726

CE(20:5(5Z,8Z,11Z,14Z,17Z) ; HMDB0006731	Ce(20:5(5Z,8Z,11Z,14Z,17Z), also known as 20:5 cholesterol ester or cholesteryl eicosapentaenoate, belongs to the class of organic compounds known as cholesteryl esters. Cholesteryl esters are compounds containing an esterified cholestane moiety. Ce(20:5(5Z,8Z,11Z,14Z,17Z) is considered to be a practically insoluble (in water) and relatively neutral molecule. Ce(20:5(5Z,8Z,11Z,14Z,17Z) has been found in human hepatic tissue tissue, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, ce(20:5(5Z,8Z,11Z,14Z,17Z) is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0006731
CE(20:5(5Z,8Z,11Z,14Z,17Z) ; HMDB06731	Ce(20:5(5Z,8Z,11Z,14Z,17Z), also known as 20:5 cholesterol ester or cholesteryl eicosapentaenoate, belongs to the class of organic compounds known as cholesteryl esters. Cholesteryl esters are compounds containing an esterified cholestane moiety. Ce(20:5(5Z,8Z,11Z,14Z,17Z) is considered to be a practically insoluble (in water) and relatively neutral molecule. Ce(20:5(5Z,8Z,11Z,14Z,17Z) has been found in human hepatic tissue tissue, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, ce(20:5(5Z,8Z,11Z,14Z,17Z) is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0006731

CE(22:4(7Z,10Z,13Z,16Z)) ; HMDB0006729	Ce(22:4(7Z,10Z,13Z,16Z)), also known as cholesteryl 1-adrenoic acid or 22:4 cholesterol ester, belongs to the class of organic compounds known as cholesteryl esters. Cholesteryl esters are compounds containing an esterified cholestane moiety. Ce(22:4(7Z,10Z,13Z,16Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. Ce(22:4(7Z,10Z,13Z,16Z)) has been found in human hepatic tissue tissue, and has also been primarily detected in urine. Within the cell, ce(22:4(7Z,10Z,13Z,16Z)) is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0006729
CE(22:4(7Z,10Z,13Z,16Z)) ; HMDB06729	Ce(22:4(7Z,10Z,13Z,16Z)), also known as cholesteryl 1-adrenoic acid or 22:4 cholesterol ester, belongs to the class of organic compounds known as cholesteryl esters. Cholesteryl esters are compounds containing an esterified cholestane moiety. Ce(22:4(7Z,10Z,13Z,16Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. Ce(22:4(7Z,10Z,13Z,16Z)) has been found in human hepatic tissue tissue, and has also been primarily detected in urine. Within the cell, ce(22:4(7Z,10Z,13Z,16Z)) is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0006729

CE(22:5(7Z,10Z,13Z,16Z,19Z)) ; HMDB0010375	Ce(22:5(7Z,10Z,13Z,16Z,19Z)), also known as cholesteryl 1-docosapentaenoate or ce(22:5/0:0), belongs to the class of organic compounds known as cholesteryl esters. Cholesteryl esters are compounds containing an esterified cholestane moiety. Ce(22:5(7Z,10Z,13Z,16Z,19Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. Ce(22:5(7Z,10Z,13Z,16Z,19Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, ce(22:5(7Z,10Z,13Z,16Z,19Z)) is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0010375
CE(22:5(7Z,10Z,13Z,16Z,19Z)) ; HMDB10375	Ce(22:5(7Z,10Z,13Z,16Z,19Z)), also known as cholesteryl 1-docosapentaenoate or ce(22:5/0:0), belongs to the class of organic compounds known as cholesteryl esters. Cholesteryl esters are compounds containing an esterified cholestane moiety. Ce(22:5(7Z,10Z,13Z,16Z,19Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. Ce(22:5(7Z,10Z,13Z,16Z,19Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, ce(22:5(7Z,10Z,13Z,16Z,19Z)) is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0010375

CE(22:6(4Z,7Z,10Z,13Z,16Z,19Z)) ; HMDB0006733	Ce(22:6(4Z,7Z,10Z,13Z,16Z,19Z)), also known as cholesteryl docosahexaenoate or 22:6 cholesterol ester, belongs to the class of organic compounds known as cholesteryl esters. Cholesteryl esters are compounds containing an esterified cholestane moiety. Ce(22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. Ce(22:6(4Z,7Z,10Z,13Z,16Z,19Z)) has been found in human hepatic tissue tissue, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, ce(22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0006733
CE(22:6(4Z,7Z,10Z,13Z,16Z,19Z)) ; HMDB06733	Ce(22:6(4Z,7Z,10Z,13Z,16Z,19Z)), also known as cholesteryl docosahexaenoate or 22:6 cholesterol ester, belongs to the class of organic compounds known as cholesteryl esters. Cholesteryl esters are compounds containing an esterified cholestane moiety. Ce(22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. Ce(22:6(4Z,7Z,10Z,13Z,16Z,19Z)) has been found in human hepatic tissue tissue, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, ce(22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0006733

Cer(d18:1/24:1(15Z)) ; HMDB0004953	Cer(D18:1/24:1(15Z)), also known as C24:1 cer or N-nervonylsphingosine, belongs to the class of organic compounds known as ceramides. These are lipid molecules containing a sphingosine in which the amine group is linked to a fatty acid. Thus, cer(D18:1/24:1(15Z)) is considered to be a ceramide lipid molecule. Cer(D18:1/24:1(15Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. Cer(D18:1/24:1(15Z)) has been found throughout most human tissues, and has also been detected in multiple biofluids, such as feces and blood. Cer(D18:1/24:1(15Z)) can be found anywhere throughout the human cell, such as in endosome, cytoplasm, mitochondria, and membrane (predicted from logP). Cer(D18:1/24:1(15Z)) can be biosynthesized from (15Z)-tetracosenoic acid.	http://www.hmdb.ca/metabolites/HMDB0004953
Cer(d18:1/24:1(15Z)) ; HMDB04953	Cer(D18:1/24:1(15Z)), also known as C24:1 cer or N-nervonylsphingosine, belongs to the class of organic compounds known as ceramides. These are lipid molecules containing a sphingosine in which the amine group is linked to a fatty acid. Thus, cer(D18:1/24:1(15Z)) is considered to be a ceramide lipid molecule. Cer(D18:1/24:1(15Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. Cer(D18:1/24:1(15Z)) has been found throughout most human tissues, and has also been detected in multiple biofluids, such as feces and blood. Cer(D18:1/24:1(15Z)) can be found anywhere throughout the human cell, such as in endosome, cytoplasm, mitochondria, and membrane (predicted from logP). Cer(D18:1/24:1(15Z)) can be biosynthesized from (15Z)-tetracosenoic acid.	http://www.hmdb.ca/metabolites/HMDB0004953

Ceramide (d18:1/16:0) ; HMDB0004949	Cer(D18:1/16:0), also known as C16 cer or nfa(C16)cer, belongs to the class of organic compounds known as long-chain ceramides. These are ceramides bearing a long chain fatty acid. Thus, cer(D18:1/16:0) is considered to be a ceramide lipid molecule. Cer(D18:1/16:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. Cer(D18:1/16:0) has been found throughout most human tissues, and has also been detected in multiple biofluids, such as feces and blood. Cer(D18:1/16:0) can be found anywhere throughout the human cell, such as in cytoplasm, intracellular membrane, membrane (predicted from logP), and myelin sheath. Cer(D18:1/16:0) can be biosynthesized from hexadecanoic acid.	http://www.hmdb.ca/metabolites/HMDB0004949
Ceramide (d18:1/16:0) ; HMDB04949	Cer(D18:1/16:0), also known as C16 cer or nfa(C16)cer, belongs to the class of organic compounds known as long-chain ceramides. These are ceramides bearing a long chain fatty acid. Thus, cer(D18:1/16:0) is considered to be a ceramide lipid molecule. Cer(D18:1/16:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. Cer(D18:1/16:0) has been found throughout most human tissues, and has also been detected in multiple biofluids, such as feces and blood. Cer(D18:1/16:0) can be found anywhere throughout the human cell, such as in cytoplasm, intracellular membrane, membrane (predicted from logP), and myelin sheath. Cer(D18:1/16:0) can be biosynthesized from hexadecanoic acid.	http://www.hmdb.ca/metabolites/HMDB0004949

Ceramide (d18:1/22:0) ; HMDB0004952	Cer(D18:1/22:0), also known as C22 cer or ceramide, belongs to the class of organic compounds known as ceramides. These are lipid molecules containing a sphingosine in which the amine group is linked to a fatty acid. Thus, cer(D18:1/22:0) is considered to be a ceramide lipid molecule. Cer(D18:1/22:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. Cer(D18:1/22:0) has been found throughout most human tissues, and has also been detected in multiple biofluids, such as feces and blood. Cer(D18:1/22:0) can be found anywhere throughout the human cell, such as in myelin sheath, endosome, cytoplasm, and intracellular membrane. Cer(D18:1/22:0) can be biosynthesized from docosanoic acid.	http://www.hmdb.ca/metabolites/HMDB0004952
Ceramide (d18:1/22:0) ; HMDB04952	Cer(D18:1/22:0), also known as C22 cer or ceramide, belongs to the class of organic compounds known as ceramides. These are lipid molecules containing a sphingosine in which the amine group is linked to a fatty acid. Thus, cer(D18:1/22:0) is considered to be a ceramide lipid molecule. Cer(D18:1/22:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. Cer(D18:1/22:0) has been found throughout most human tissues, and has also been detected in multiple biofluids, such as feces and blood. Cer(D18:1/22:0) can be found anywhere throughout the human cell, such as in myelin sheath, endosome, cytoplasm, and intracellular membrane. Cer(D18:1/22:0) can be biosynthesized from docosanoic acid.	http://www.hmdb.ca/metabolites/HMDB0004952

Ceramide (d18:1/24:0) ; HMDB0004956	Cer(D18:1/24:0), also known as C24 cer or ceramide, belongs to the class of organic compounds known as ceramides. These are lipid molecules containing a sphingosine in which the amine group is linked to a fatty acid. Thus, cer(D18:1/24:0) is considered to be a ceramide lipid molecule. Cer(D18:1/24:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. Cer(D18:1/24:0) has been found throughout most human tissues, and has also been detected in multiple biofluids, such as feces and blood. Cer(D18:1/24:0) can be found anywhere throughout the human cell, such as in intracellular membrane, cytoplasm, mitochondria, and endosome. Cer(D18:1/24:0) can be biosynthesized from tetracosanoic acid.	http://www.hmdb.ca/metabolites/HMDB0004956
Ceramide (d18:1/24:0) ; HMDB04956	Cer(D18:1/24:0), also known as C24 cer or ceramide, belongs to the class of organic compounds known as ceramides. These are lipid molecules containing a sphingosine in which the amine group is linked to a fatty acid. Thus, cer(D18:1/24:0) is considered to be a ceramide lipid molecule. Cer(D18:1/24:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. Cer(D18:1/24:0) has been found throughout most human tissues, and has also been detected in multiple biofluids, such as feces and blood. Cer(D18:1/24:0) can be found anywhere throughout the human cell, such as in intracellular membrane, cytoplasm, mitochondria, and endosome. Cer(D18:1/24:0) can be biosynthesized from tetracosanoic acid.	http://www.hmdb.ca/metabolites/HMDB0004956

Chenodeoxycholic acid ; HMDB0000518	Chenodeoxycholic acid, also known as chenodeoxycholate or chenix, belongs to the class of organic compounds known as dihydroxy bile acids, alcohols and derivatives. Dihydroxy bile acids, alcohols and derivatives are compounds containing or derived from a bile acid or alcohol, and which bears exactly two carboxylic acid groups. Chenodeoxycholic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Chenodeoxycholic acid has been found in human hepatic tissue and liver tissues, and has also been primarily detected in bile, feces, urine, and blood. Within the cell, chenodeoxycholic acid is primarily located in the membrane (predicted from logP) and cytoplasm. Chenodeoxycholic acid can be biosynthesized from chenodeoxycholoyl-CoA and cholic acid; which is mediated by the enzyme bile acyl-CoA synthetase. In humans, chenodeoxycholic acid is involved in bile acid biosynthesis pathway, congenital bile acid synthesis defect type II pathway, the cerebrotendinous xanthomatosis (CTX) pathway, and congenital bile acid synthesis defect type III pathway. Chenodeoxycholic acid is also involved in a few metabolic disorders, which include the familial hypercholanemia (fhca) pathway, 27-hydroxylase deficiency, and the zellweger syndrome pathway.	http://www.hmdb.ca/metabolites/HMDB0000518

Chenodeoxycholic acid ; HMDB00518	Chenodeoxycholic acid, also known as chenodeoxycholate or chenix, belongs to the class of organic compounds known as dihydroxy bile acids, alcohols and derivatives. Dihydroxy bile acids, alcohols and derivatives are compounds containing or derived from a bile acid or alcohol, and which bears exactly two carboxylic acid groups. Chenodeoxycholic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Chenodeoxycholic acid has been found in human hepatic tissue and liver tissues, and has also been primarily detected in bile, feces, urine, and blood. Within the cell, chenodeoxycholic acid is primarily located in the membrane (predicted from logP) and cytoplasm. Chenodeoxycholic acid can be biosynthesized from chenodeoxycholoyl-CoA and cholic acid; which is mediated by the enzyme bile acyl-CoA synthetase. In humans, chenodeoxycholic acid is involved in bile acid biosynthesis pathway, congenital bile acid synthesis defect type II pathway, the cerebrotendinous xanthomatosis (CTX) pathway, and congenital bile acid synthesis defect type III pathway. Chenodeoxycholic acid is also involved in a few metabolic disorders, which include the familial hypercholanemia (fhca) pathway, 27-hydroxylase deficiency, and the zellweger syndrome pathway.	http://www.hmdb.ca/metabolites/HMDB0000518

Chenodeoxycholic acid glycine conjugate ; HMDB0000637	Chenodeoxycholic acid glycine conjugate, also known as (23R)-hydroxychenodeoxycholylglycine or 12-deoxycholylglycine, belongs to the class of organic compounds known as glycinated bile acids and derivatives. Glycinated bile acids and derivatives are compounds with a structure characterized by the presence of a glycine linked to a bile acid skeleton. Chenodeoxycholic acid glycine conjugate is considered to be a practically insoluble (in water) and relatively neutral molecule. Chenodeoxycholic acid glycine conjugate has been found in human hepatic tissue and prostate tissues, and has also been primarily detected in bile, feces, urine, and blood. Within the cell, chenodeoxycholic acid glycine conjugate is primarily located in the membrane (predicted from logP) and cytoplasm. Chenodeoxycholic acid glycine conjugate and glycocholic acid can be biosynthesized from chenodeoxycholoyl-CoA and glycine through its interaction with the enzyme bile acid-coa:amino acid N-acyltransferase. In humans, chenodeoxycholic acid glycine conjugate is involved in bile acid biosynthesis pathway, the cerebrotendinous xanthomatosis (CTX) pathway, congenital bile acid synthesis defect type III pathway, and congenital bile acid synthesis defect type II pathway. Chenodeoxycholic acid glycine conjugate is also involved in a few metabolic disorders, which include the zellweger syndrome pathway, the familial hypercholanemia (fhca) pathway, and 27-hydroxylase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000637

Chenodeoxycholic acid glycine conjugate ; HMDB00637	Chenodeoxycholic acid glycine conjugate, also known as (23R)-hydroxychenodeoxycholylglycine or 12-deoxycholylglycine, belongs to the class of organic compounds known as glycinated bile acids and derivatives. Glycinated bile acids and derivatives are compounds with a structure characterized by the presence of a glycine linked to a bile acid skeleton. Chenodeoxycholic acid glycine conjugate is considered to be a practically insoluble (in water) and relatively neutral molecule. Chenodeoxycholic acid glycine conjugate has been found in human hepatic tissue and prostate tissues, and has also been primarily detected in bile, feces, urine, and blood. Within the cell, chenodeoxycholic acid glycine conjugate is primarily located in the membrane (predicted from logP) and cytoplasm. Chenodeoxycholic acid glycine conjugate and glycocholic acid can be biosynthesized from chenodeoxycholoyl-CoA and glycine through its interaction with the enzyme bile acid-coa:amino acid N-acyltransferase. In humans, chenodeoxycholic acid glycine conjugate is involved in bile acid biosynthesis pathway, the cerebrotendinous xanthomatosis (CTX) pathway, congenital bile acid synthesis defect type III pathway, and congenital bile acid synthesis defect type II pathway. Chenodeoxycholic acid glycine conjugate is also involved in a few metabolic disorders, which include the zellweger syndrome pathway, the familial hypercholanemia (fhca) pathway, and 27-hydroxylase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000637

Cholestenone ; HMDB0000921	Cholestenone belongs to the class of organic compounds known as cholesterols and derivatives. Cholesterols and derivatives are compounds containing a 3-hydroxylated cholestane core. Thus, cholestenone is considered to be a sterol lipid molecule. Cholestenone exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Cholestenone has been found throughout all human tissues, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, cholestenone is primarily located in the membrane (predicted from logP) and cytoplasm. Cholestenone is also a parent compound for other transformation products, including but not limited to, 3-ketocholest-4-en-26-al, 26-hydroxycholest-4-en-3-one, and 7alpha,25-dihydroxy-4-cholesten-3-one.	http://www.hmdb.ca/metabolites/HMDB0000921

Cholesterol ; HMDB0000067	Cholesterol, also known as cholesterin or cordulan, belongs to the class of organic compounds known as cholesterols and derivatives. Cholesterols and derivatives are compounds containing a 3-hydroxylated cholestane core. Thus, cholesterol is considered to be a sterol lipid molecule. Cholesterol exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Cholesterol has been found throughout all human tissues, and has also been detected in most biofluids, including feces, blood, cerebrospinal fluid, and bile. Cholesterol can be found anywhere throughout the human cell, such as in lysosome, cytoplasm, membrane (predicted from logP), and endoplasmic reticulum. Cholesterol participates in a number of enzymatic reactions. In particular, Cholesterol can be converted into 22b-hydroxycholesterol through its interaction with the enzyme cholesterol side-chain cleavage enzyme, mitochondrial. Furthermore, Cholesterol can be converted into 20alpha-hydroxycholesterol through its interaction with the enzyme cholesterol side-chain cleavage enzyme, mitochondrial. Furthermore, Cholesterol can be converted into 7a-hydroxycholesterol through its interaction with the enzyme cholesterol 7-alpha-monooxygenase. Finally, Cholesterol and palmitic acid can be biosynthesized from ce(22:2(13Z,16Z)) through the action of the enzyme lysosomal acid lipase/cholesteryl ester hydrolase. In humans, cholesterol is involved in bile acid biosynthesis pathway, steroid biosynthesis pathway, the lovastatin action pathway, and the zoledronate action pathway. Cholesterol is also involved in several metabolic disorders, some of which include the child syndrome pathway, adrenal hyperplasia type 5 or congenital adrenal hyperplasia due to 17 Alpha-hydroxylase deficiency, the apparent mineralocorticoid excess syndrome pathway, and the	http://www.hmdb.ca/metabolites/HMDB0000067

	hypercholesterolemia pathway.	

Cholesterol ; HMDB00067	Cholesterol, also known as cholesterin or cordulan, belongs to the class of organic compounds known as cholesterols and derivatives. Cholesterols and derivatives are compounds containing a 3-hydroxylated cholestane core. Thus, cholesterol is considered to be a sterol lipid molecule. Cholesterol exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Cholesterol has been found throughout all human tissues, and has also been detected in most biofluids, including feces, blood, cerebrospinal fluid, and bile. Cholesterol can be found anywhere throughout the human cell, such as in lysosome, cytoplasm, membrane (predicted from logP), and endoplasmic reticulum. Cholesterol participates in a number of enzymatic reactions. In particular, Cholesterol can be converted into 22b-hydroxycholesterol through its interaction with the enzyme cholesterol side-chain cleavage enzyme, mitochondrial. Furthermore, Cholesterol can be converted into 20alpha-hydroxycholesterol through its interaction with the enzyme cholesterol side-chain cleavage enzyme, mitochondrial. Furthermore, Cholesterol can be converted into 7a-hydroxycholesterol through its interaction with the enzyme cholesterol 7-alpha-monooxygenase. Finally, Cholesterol and palmitic acid can be biosynthesized from ce(22:2(13Z,16Z)) through the action of the enzyme lysosomal acid lipase/cholesteryl ester hydrolase. In humans, cholesterol is involved in bile acid biosynthesis pathway, steroid biosynthesis pathway, the lovastatin action pathway, and the zoledronate action pathway. Cholesterol is also involved in several metabolic disorders, some of which include the child syndrome pathway, adrenal hyperplasia type 5 or congenital adrenal hyperplasia due to 17 Alpha-hydroxylase deficiency, the apparent mineralocorticoid excess syndrome pathway, and the	http://www.hmdb.ca/metabolites/HMDB0000067

	hypercholesterolemia pathway.	
Cholic acid ; HMDB0000619	Cholic acid, also known as cholate or cholsaeure, belongs to the class of organic compounds known as trihydroxy bile acids, alcohols and derivatives. These are prenol lipids structurally characterized by a bile acid or alcohol which bears three hydroxyl groups. Cholic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Cholic acid has been found throughout all human tissues, and has also been primarily detected in bile, feces, urine, and blood. Within the cell, cholic acid is primarily located in the membrane (predicted from logP) and cytoplasm. Cholic acid participates in a number of enzymatic reactions. In particular, Chenodeoxycholoyl-CoA and cholic acid can be converted into chenodeoxycholic acid; which is catalyzed by the enzyme bile acyl-CoA synthetase. In addition, Cholic acid can be biosynthesized from choloyl-CoA; which is mediated by the enzyme bile acyl-CoA synthetase. In humans, cholic acid is involved in the cerebrotendinous xanthomatosis (CTX) pathway, bile acid biosynthesis pathway, congenital bile acid synthesis defect type II pathway, and congenital bile acid synthesis defect type III pathway. Cholic acid is also involved in a few metabolic disorders, which include the zellweger syndrome pathway, 27-hydroxylase deficiency, and the familial hypercholanemia (fhca) pathway. Outside of the human body, cholic acid can be found in a number of food items such as ginkgo nuts, celeriac, lotus, and small-leaf linden. This makes cholic acid a potential biomarker for the consumption of these food products. Cholic acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000619

Cholic acid ; HMDB00619	Cholic acid, also known as cholate or cholsaeure, belongs to the class of organic compounds known as trihydroxy bile acids, alcohols and derivatives. These are prenol lipids structurally characterized by a bile acid or alcohol which bears three hydroxyl groups. Cholic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Cholic acid has been found throughout all human tissues, and has also been primarily detected in bile, feces, urine, and blood. Within the cell, cholic acid is primarily located in the membrane (predicted from logP) and cytoplasm. Cholic acid participates in a number of enzymatic reactions. In particular, Chenodeoxycholoyl-CoA and cholic acid can be converted into chenodeoxycholic acid; which is catalyzed by the enzyme bile acyl-CoA synthetase. In addition, Cholic acid can be biosynthesized from choloyl-CoA; which is mediated by the enzyme bile acyl-CoA synthetase. In humans, cholic acid is involved in the cerebrotendinous xanthomatosis (CTX) pathway, bile acid biosynthesis pathway, congenital bile acid synthesis defect type II pathway, and congenital bile acid synthesis defect type III pathway. Cholic acid is also involved in a few metabolic disorders, which include the zellweger syndrome pathway, 27-hydroxylase deficiency, and the familial hypercholanemia (fhca) pathway. Outside of the human body, cholic acid can be found in a number of food items such as ginkgo nuts, celeriac, lotus, and small-leaf linden. This makes cholic acid a potential biomarker for the consumption of these food products. Cholic acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000619

Choline ; HMDB0000097	Choline, also known as bilineurine or choline ion, belongs to the class of organic compounds known as cholines. These are organic compounds containing a N,N,N-trimethylethanolammonium cation. Choline is a drug which is used for nutritional supplementation, also for treating dietary shortage or imbalance. Choline exists as a solid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). Choline has been found throughout most human tissues, and has also been detected in most biofluids, including breast milk, urine, blood, and cerebrospinal fluid. Choline can be found anywhere throughout the human cell, such as in nucleus, myelin sheath, mitochondria, and endoplasmic reticulum. Choline exists in all eukaryotes, ranging from yeast to humans. Choline participates in a number of enzymatic reactions. In particular, Choline can be converted into betaine aldehyde; which is mediated by the enzyme choline dehydrogenase, mitochondrial. In addition, Choline can be converted into betaine; which is mediated by the enzyme choline dehydrogenase, mitochondrial. In humans, choline is involved in phosphatidylcholine biosynthesis PC(16:1(9Z)/22:4(7Z,10Z,13Z,16Z)) pathway, phosphatidylethanolamine biosynthesis pe(18:0/20:2(11Z,14Z)) pathway, phosphatidylethanolamine biosynthesis pe(16:1(9Z)/20:5(5Z,8Z,11Z,14Z,17Z)) pathway, and phosphatidylcholine biosynthesis PC(20:4(8Z,11Z,14Z,17Z)/20:5(5Z,8Z,11Z,14Z,17Z)) pathway. Choline is also involved in several metabolic disorders, some of which include glycine N-methyltransferase deficiency, the homocystinuria-megaloblastic anemia due to defect in cobalamin metabolism, CBLG complementation type pathway, methionine adenosyltransferase deficiency, and S-adenosylhomocysteine (sah) hydrolase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000097

Choline ; HMDB00097	Choline, also known as bilineurine or choline ion, belongs to the class of organic compounds known as cholines. These are organic compounds containing a N,N,N-trimethylethanolammonium cation. Choline is a drug which is used for nutritional supplementation, also for treating dietary shortage or imbalance. Choline exists as a solid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). Choline has been found throughout most human tissues, and has also been detected in most biofluids, including breast milk, urine, blood, and cerebrospinal fluid. Choline can be found anywhere throughout the human cell, such as in nucleus, myelin sheath, mitochondria, and endoplasmic reticulum. Choline exists in all eukaryotes, ranging from yeast to humans. Choline participates in a number of enzymatic reactions. In particular, Choline can be converted into betaine aldehyde; which is mediated by the enzyme choline dehydrogenase, mitochondrial. In addition, Choline can be converted into betaine; which is mediated by the enzyme choline dehydrogenase, mitochondrial. In humans, choline is involved in phosphatidylcholine biosynthesis PC(16:1(9Z)/22:4(7Z,10Z,13Z,16Z)) pathway, phosphatidylethanolamine biosynthesis pe(18:0/20:2(11Z,14Z)) pathway, phosphatidylethanolamine biosynthesis pe(16:1(9Z)/20:5(5Z,8Z,11Z,14Z,17Z)) pathway, and phosphatidylcholine biosynthesis PC(20:4(8Z,11Z,14Z,17Z)/20:5(5Z,8Z,11Z,14Z,17Z)) pathway. Choline is also involved in several metabolic disorders, some of which include glycine N-methyltransferase deficiency, the homocystinuria-megaloblastic anemia due to defect in cobalamin metabolism, CBLG complementation type pathway, methionine adenosyltransferase deficiency, and S-adenosylhomocysteine (sah) hydrolase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000097

Cinnamoylglycine ; HMDB0011621	Cinnamoylglycine belongs to the class of organic compounds known as n-acyl-alpha amino acids. N-acyl-alpha amino acids are compounds containing an alpha amino acid which bears an acyl group at its terminal nitrogen atom. Cinnamoylglycine is considered to be a practically insoluble (in water) and relatively neutral molecule. Cinnamoylglycine has been primarily detected in blood.	http://www.hmdb.ca/metabolites/HMDB0011621
Cinnamoylglycine ; HMDB11621	Cinnamoylglycine belongs to the class of organic compounds known as n-acyl-alpha amino acids. N-acyl-alpha amino acids are compounds containing an alpha amino acid which bears an acyl group at its terminal nitrogen atom. Cinnamoylglycine is considered to be a practically insoluble (in water) and relatively neutral molecule. Cinnamoylglycine has been primarily detected in blood.	http://www.hmdb.ca/metabolites/HMDB0011621
cis-5-Tetradecenoylcarnitine ; HMDB0002014	cis-5-Tetradecenoylcarnitine belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, cis-5-tetradecenoylcarnitine is considered to be a fatty ester lipid molecule. cis-5-Tetradecenoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. cis-5-Tetradecenoylcarnitine has been detected in multiple biofluids, such as urine and blood. Within the cell, cis-5-tetradecenoylcarnitine is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0002014

cis-5-Tetradecenoylcarnitine ; HMDB02014	cis-5-Tetradecenoylcarnitine belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, cis-5-tetradecenoylcarnitine is considered to be a fatty ester lipid molecule. cis-5-Tetradecenoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. cis-5-Tetradecenoylcarnitine has been detected in multiple biofluids, such as urine and blood. Within the cell, cis-5-tetradecenoylcarnitine is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0002014

cis-Aconitic acid ; HMDB0000072	cis-Aconitic acid, also known as cis-aconitate or acid, acontic, belongs to the class of organic compounds known as tricarboxylic acids and derivatives. These are carboxylic acids containing exactly three carboxyl groups. cis-Aconitic acid exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). cis-Aconitic acid has been found in human prostate tissue, and has also been detected in most biofluids, including cerebrospinal fluid, urine, breast milk, and saliva. Within the cell, cis-aconitic acid is primarily located in the cytoplasm and mitochondria. cis-Aconitic acid exists in all eukaryotes, ranging from yeast to humans. cis-Aconitic acid participates in a number of enzymatic reactions. In particular, cis-Aconitic acid can be biosynthesized from citric acid; which is mediated by the enzyme aconitate hydratase, mitochondrial. In addition, cis-Aconitic acid can be converted into isocitric acid; which is catalyzed by the enzyme aconitate hydratase, mitochondrial. In humans, cis-aconitic acid is involved in the congenital lactic acidosis pathway, the oncogenic action OF fumarate pathway, the oncogenic action OF succinate pathway, and the oncogenic action OF 2-hydroxyglutarate pathway. cis-Aconitic acid is also involved in several metabolic disorders, some of which include the glutaminolysis and cancer pathway, mitochondrial complex II deficiency, fumarase deficiency, and 2-ketoglutarate dehydrogenase complex deficiency. cis-Aconitic acid is a very mild, musty, and nutty tasting compound that can be found in a number of food items such as barley, corn, red beetroot, and potato. This makes cis-aconitic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000072

cis-Aconitic acid ; HMDB00072	cis-Aconitic acid, also known as cis-aconitate or acid, acontic, belongs to the class of organic compounds known as tricarboxylic acids and derivatives. These are carboxylic acids containing exactly three carboxyl groups. cis-Aconitic acid exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). cis-Aconitic acid has been found in human prostate tissue, and has also been detected in most biofluids, including cerebrospinal fluid, urine, breast milk, and saliva. Within the cell, cis-aconitic acid is primarily located in the cytoplasm and mitochondria. cis-Aconitic acid exists in all eukaryotes, ranging from yeast to humans. cis-Aconitic acid participates in a number of enzymatic reactions. In particular, cis-Aconitic acid can be biosynthesized from citric acid; which is mediated by the enzyme aconitate hydratase, mitochondrial. In addition, cis-Aconitic acid can be converted into isocitric acid; which is catalyzed by the enzyme aconitate hydratase, mitochondrial. In humans, cis-aconitic acid is involved in the congenital lactic acidosis pathway, the oncogenic action OF fumarate pathway, the oncogenic action OF succinate pathway, and the oncogenic action OF 2-hydroxyglutarate pathway. cis-Aconitic acid is also involved in several metabolic disorders, some of which include the glutaminolysis and cancer pathway, mitochondrial complex II deficiency, fumarase deficiency, and 2-ketoglutarate dehydrogenase complex deficiency. cis-Aconitic acid is a very mild, musty, and nutty tasting compound that can be found in a number of food items such as barley, corn, red beetroot, and potato. This makes cis-aconitic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000072

Citramalic acid ; HMDB0000426	2-Hydroxy-2-methylbutanedioic acid, also known as citramalate or alpha-hydroxypyrotartaric acid, belongs to the class of organic compounds known as hydroxy fatty acids. These are fatty acids in which the chain bears a hydroxyl group. 2-Hydroxy-2-methylbutanedioic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). 2-Hydroxy-2-methylbutanedioic acid has been primarily detected in saliva, feces, urine, and blood. Within the cell, 2-hydroxy-2-methylbutanedioic acid is primarily located in the cytoplasm and adiposome. 2-Hydroxy-2-methylbutanedioic acid exists in all eukaryotes, ranging from yeast to humans. 2-Hydroxy-2-methylbutanedioic acid can be biosynthesized from succinic acid. Outside of the human body, 2-hydroxy-2-methylbutanedioic acid can be found in pomes. This makes 2-hydroxy-2-methylbutanedioic acid a potential biomarker for the consumption of this food product.	http://www.hmdb.ca/metabolites/HMDB0000426

Citric acid ; HMDB0000094	Citric acid, also known as citrate or citronensaeure, belongs to the class of organic compounds known as tricarboxylic acids and derivatives. These are carboxylic acids containing exactly three carboxyl groups. Citric acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Citric acid has been found throughout all human tissues, and has also been detected in most biofluids, including urine, cerebrospinal fluid, saliva, and breast milk. Within the cell, citric acid is primarily located in the cytoplasm and mitochondria. Citric acid exists in all eukaryotes, ranging from yeast to humans. Citric acid participates in a number of enzymatic reactions. In particular, Citric acid can be biosynthesized from oxalacetic acid through the action of the enzyme citrate synthase, mitochondrial. In addition, Citric acid can be converted into cis-aconitic acid through the action of the enzyme aconitate hydratase, mitochondrial. In humans, citric acid is involved in the oncogenic action OF 2-hydroxyglutarate pathway, the citric Acid cycle pathway, the oncogenic action OF fumarate pathway, and the congenital lactic acidosis pathway. Citric acid is also involved in several metabolic disorders, some of which include the oncogenic action OF D-2-hydroxyglutarate in hydroxygluaricaciduria pathway, pyruvate dehydrogenase deficiency (e2), the oncogenic action OF L-2-hydroxyglutarate in hydroxygluaricaciduria pathway, and fumarase deficiency. Outside of the human body, citric acid can be found in a number of food items such as opium poppy, red raspberry, devilfish, and bamboo shoots. This makes citric acid a potential biomarker for the consumption of these food products. Citric acid has been found to be associated with several diseases known as rhabdomyolysis and deafness, onychodystrophy, osteodystrophy, mental retardation, and seizures syndrome; citric acid has also been linked to several inborn	http://www.hmdb.ca/metabolites/HMDB0000094

	metabolic disorders including maple syrup urine disease, primary hypomagnesemia, and tyrosinemia I.	

Citric acid ; HMDB00094	Citric acid, also known as citrate or citronensaeure, belongs to the class of organic compounds known as tricarboxylic acids and derivatives. These are carboxylic acids containing exactly three carboxyl groups. Citric acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Citric acid has been found throughout all human tissues, and has also been detected in most biofluids, including urine, cerebrospinal fluid, saliva, and breast milk. Within the cell, citric acid is primarily located in the cytoplasm and mitochondria. Citric acid exists in all eukaryotes, ranging from yeast to humans. Citric acid participates in a number of enzymatic reactions. In particular, Citric acid can be biosynthesized from oxalacetic acid through the action of the enzyme citrate synthase, mitochondrial. In addition, Citric acid can be converted into cis-aconitic acid through the action of the enzyme aconitate hydratase, mitochondrial. In humans, citric acid is involved in the oncogenic action OF 2-hydroxyglutarate pathway, the citric Acid cycle pathway, the oncogenic action OF fumarate pathway, and the congenital lactic acidosis pathway. Citric acid is also involved in several metabolic disorders, some of which include the oncogenic action OF D-2-hydroxyglutarate in hydroxygluaricaciduria pathway, pyruvate dehydrogenase deficiency (e2), the oncogenic action OF L-2-hydroxyglutarate in hydroxygluaricaciduria pathway, and fumarase deficiency. Outside of the human body, citric acid can be found in a number of food items such as opium poppy, red raspberry, devilfish, and bamboo shoots. This makes citric acid a potential biomarker for the consumption of these food products. Citric acid has been found to be associated with several diseases known as rhabdomyolysis and deafness, onychodystrophy, osteodystrophy, mental retardation, and seizures syndrome; citric acid has also been linked to several inborn	http://www.hmdb.ca/metabolites/HMDB0000094

	metabolic disorders including maple syrup urine disease, primary hypomagnesemia, and tyrosinemia I.	

Citrulline ; HMDB0000904	Citrulline, also known as Cit or -ureidonorvaline, belongs to the class of organic compounds known as l-alpha-amino acids. These are alpha amino acids which have the L-configuration of the alpha-carbon atom. Citrulline is a drug which is used for nutritional supplementation, also for treating dietary shortage or imbalance. Citrulline exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Citrulline has been found throughout most human tissues, and has also been detected in most biofluids, including saliva, blood, feces, and urine. Within the cell, citrulline is primarily located in the mitochondria, myelin sheath and cytoplasm. Citrulline exists in all eukaryotes, ranging from yeast to humans. Citrulline participates in a number of enzymatic reactions. In particular, Citrulline and L-aspartic acid can be converted into argininosuccinic acid; which is catalyzed by the enzyme argininosuccinate synthase. Furthermore, Citrulline can be biosynthesized from carbamoyl phosphate and ornithine through the action of the enzyme ornithine carbamoyltransferase, mitochondrial. Furthermore, Citrulline can be biosynthesized from carbamoyl phosphate and ornithine; which is mediated by the enzyme ornithine carbamoyltransferase, mitochondrial. Finally, Citrulline and L-aspartic acid can be converted into argininosuccinic acid; which is catalyzed by the enzyme argininosuccinate synthase. In humans, citrulline is involved in the aspartate metabolism pathway, the urea cycle pathway, and the arginine and proline metabolism pathway. Citrulline is also involved in several metabolic disorders, some of which include the argininosuccinic aciduria pathway, creatine deficiency, guanidinoacetate methyltransferase deficiency, the hypoacetylaspartia pathway, and the hyperprolinemia type II pathway. Citrulline is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000904

Citrulline ; HMDB00904	Citrulline, also known as Cit or -ureidonorvaline, belongs to the class of organic compounds known as l-alpha-amino acids. These are alpha amino acids which have the L-configuration of the alpha-carbon atom. Citrulline is a drug which is used for nutritional supplementation, also for treating dietary shortage or imbalance. Citrulline exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Citrulline has been found throughout most human tissues, and has also been detected in most biofluids, including saliva, blood, feces, and urine. Within the cell, citrulline is primarily located in the mitochondria, myelin sheath and cytoplasm. Citrulline exists in all eukaryotes, ranging from yeast to humans. Citrulline participates in a number of enzymatic reactions. In particular, Citrulline and L-aspartic acid can be converted into argininosuccinic acid; which is catalyzed by the enzyme argininosuccinate synthase. Furthermore, Citrulline can be biosynthesized from carbamoyl phosphate and ornithine through the action of the enzyme ornithine carbamoyltransferase, mitochondrial. Furthermore, Citrulline can be biosynthesized from carbamoyl phosphate and ornithine; which is mediated by the enzyme ornithine carbamoyltransferase, mitochondrial. Finally, Citrulline and L-aspartic acid can be converted into argininosuccinic acid; which is catalyzed by the enzyme argininosuccinate synthase. In humans, citrulline is involved in the aspartate metabolism pathway, the urea cycle pathway, and the arginine and proline metabolism pathway. Citrulline is also involved in several metabolic disorders, some of which include the argininosuccinic aciduria pathway, creatine deficiency, guanidinoacetate methyltransferase deficiency, the hypoacetylaspartia pathway, and the hyperprolinemia type II pathway. Citrulline is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000904

Corticosterone ; HMDB0001547	Corticosterone, also known as 17-deoxycortisol or 11-b, belongs to the class of organic compounds known as 21-hydroxysteroids. These are steroids carrying a hydroxyl group at the 21-position of the steroid backbone. Thus, corticosterone is considered to be a steroid lipid molecule. Corticosterone exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Corticosterone has been found throughout most human tissues, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, corticosterone is primarily located in the cytoplasm, membrane (predicted from logP), mitochondria and endoplasmic reticulum. Corticosterone participates in a number of enzymatic reactions. In particular, Corticosterone can be converted into 18-hydroxycorticosterone through its interaction with the enzyme cytochrome P450 11B1. In addition, Corticosterone can be biosynthesized from 11b-hydroxyprogesterone through its interaction with the enzyme steroid 21-hydroxylase. In humans, corticosterone is involved in the steroidogenesis pathway. Corticosterone is also involved in several metabolic disorders, some of which include 21-hydroxylase deficiency (cyp21), adrenal hyperplasia type 3 or congenital adrenal hyperplasia due to 21-hydroxylase deficiency, the apparent mineralocorticoid excess syndrome pathway, and 3-Beta-hydroxysteroid dehydrogenase deficiency.	http://www.hmdb.ca/metabolites/HMDB0001547

Corticosterone ; HMDB01547	Corticosterone, also known as 17-deoxycortisol or 11-b, belongs to the class of organic compounds known as 21-hydroxysteroids. These are steroids carrying a hydroxyl group at the 21-position of the steroid backbone. Thus, corticosterone is considered to be a steroid lipid molecule. Corticosterone exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Corticosterone has been found throughout most human tissues, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, corticosterone is primarily located in the cytoplasm, membrane (predicted from logP), mitochondria and endoplasmic reticulum. Corticosterone participates in a number of enzymatic reactions. In particular, Corticosterone can be converted into 18-hydroxycorticosterone through its interaction with the enzyme cytochrome P450 11B1. In addition, Corticosterone can be biosynthesized from 11b-hydroxyprogesterone through its interaction with the enzyme steroid 21-hydroxylase. In humans, corticosterone is involved in the steroidogenesis pathway. Corticosterone is also involved in several metabolic disorders, some of which include 21-hydroxylase deficiency (cyp21), adrenal hyperplasia type 3 or congenital adrenal hyperplasia due to 21-hydroxylase deficiency, the apparent mineralocorticoid excess syndrome pathway, and 3-Beta-hydroxysteroid dehydrogenase deficiency.	http://www.hmdb.ca/metabolites/HMDB0001547

Cortisol ; HMDB0000063	Cortisol, also known as epicort or cortril, belongs to the class of organic compounds known as 21-hydroxysteroids. These are steroids carrying a hydroxyl group at the 21-position of the steroid backbone. Thus, cortisol is considered to be a steroid lipid molecule. Cortisol is a drug which is used for the relief of the inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses. also used to treat endocrine (hormonal) disorders (adrenal insufficiency, addisons disease). it is also used to treat many immune and allergic disorders, such as arthritis, lupus, severe psoriasis, severe asthma, ulcerative colitis, and crohn's disease. Cortisol exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Cortisol has been found throughout most human tissues, and has also been primarily detected in urine, saliva, blood, and cerebrospinal fluid. Within the cell, cortisol is primarily located in the cytoplasm, membrane (predicted from logP), mitochondria and endoplasmic reticulum. Cortisol participates in a number of enzymatic reactions. In particular, Cortisol can be biosynthesized from 21-deoxycortisol through the action of the enzyme steroid 21-hydroxylase. In addition, Cortisol can be biosynthesized from cortexolone through its interaction with the enzyme cytochrome P450 11B1. In humans, cortisol is involved in the corticotropin activation OF cortisol production pathway and the steroidogenesis pathway. Cortisol is also involved in several metabolic disorders, some of which include adrenal hyperplasia type 3 or congenital adrenal hyperplasia due to 21-hydroxylase deficiency, the congenital lipoid adrenal hyperplasia (clah) or lipoid cah pathway, 21-hydroxylase deficiency (cyp21), and 3-Beta-hydroxysteroid dehydrogenase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000063

Cortisol ; HMDB00063	Cortisol, also known as epicort or cortril, belongs to the class of organic compounds known as 21-hydroxysteroids. These are steroids carrying a hydroxyl group at the 21-position of the steroid backbone. Thus, cortisol is considered to be a steroid lipid molecule. Cortisol is a drug which is used for the relief of the inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses. also used to treat endocrine (hormonal) disorders (adrenal insufficiency, addisons disease). it is also used to treat many immune and allergic disorders, such as arthritis, lupus, severe psoriasis, severe asthma, ulcerative colitis, and crohn's disease. Cortisol exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Cortisol has been found throughout most human tissues, and has also been primarily detected in urine, saliva, blood, and cerebrospinal fluid. Within the cell, cortisol is primarily located in the cytoplasm, membrane (predicted from logP), mitochondria and endoplasmic reticulum. Cortisol participates in a number of enzymatic reactions. In particular, Cortisol can be biosynthesized from 21-deoxycortisol through the action of the enzyme steroid 21-hydroxylase. In addition, Cortisol can be biosynthesized from cortexolone through its interaction with the enzyme cytochrome P450 11B1. In humans, cortisol is involved in the corticotropin activation OF cortisol production pathway and the steroidogenesis pathway. Cortisol is also involved in several metabolic disorders, some of which include adrenal hyperplasia type 3 or congenital adrenal hyperplasia due to 21-hydroxylase deficiency, the congenital lipoid adrenal hyperplasia (clah) or lipoid cah pathway, 21-hydroxylase deficiency (cyp21), and 3-Beta-hydroxysteroid dehydrogenase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000063

Cortisone ; HMDB0002802	Cortisone, also known as cortef or locoid, belongs to the class of organic compounds known as 21-hydroxysteroids. These are steroids carrying a hydroxyl group at the 21-position of the steroid backbone. Thus, cortisone is considered to be a steroid lipid molecule. Cortisone exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Cortisone has been found throughout most human tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, cortisone is primarily located in the membrane (predicted from logP), endoplasmic reticulum, myelin sheath and cytoplasm. Cortisone participates in a number of enzymatic reactions. In particular, Cortisone can be biosynthesized from 17a,21-dihydroxy-5b-pregnane-3,11,20-trione through its interaction with the enzyme 3-oxo-5-beta-steroid 4-dehydrogenase. In addition, Cortisone, nadph, and hydrogen ion can be biosynthesized from cortisol and nadp through the action of the enzyme corticosteroid 11-beta-dehydrogenase isozyme 2. In humans, cortisone is involved in the steroidogenesis pathway. Cortisone is also involved in several metabolic disorders, some of which include 21-hydroxylase deficiency (cyp21), adrenal hyperplasia type 5 or congenital adrenal hyperplasia due to 17 Alpha-hydroxylase deficiency, corticosterone methyl oxidase I deficiency (cmo I), and adrenal hyperplasia type 3 or congenital adrenal hyperplasia due to 21-hydroxylase deficiency.	http://www.hmdb.ca/metabolites/HMDB0002802

Cortisone ; HMDB02802	Cortisone, also known as cortef or locoid, belongs to the class of organic compounds known as 21-hydroxysteroids. These are steroids carrying a hydroxyl group at the 21-position of the steroid backbone. Thus, cortisone is considered to be a steroid lipid molecule. Cortisone exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Cortisone has been found throughout most human tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, cortisone is primarily located in the membrane (predicted from logP), endoplasmic reticulum, myelin sheath and cytoplasm. Cortisone participates in a number of enzymatic reactions. In particular, Cortisone can be biosynthesized from 17a,21-dihydroxy-5b-pregnane-3,11,20-trione through its interaction with the enzyme 3-oxo-5-beta-steroid 4-dehydrogenase. In addition, Cortisone, nadph, and hydrogen ion can be biosynthesized from cortisol and nadp through the action of the enzyme corticosteroid 11-beta-dehydrogenase isozyme 2. In humans, cortisone is involved in the steroidogenesis pathway. Cortisone is also involved in several metabolic disorders, some of which include 21-hydroxylase deficiency (cyp21), adrenal hyperplasia type 5 or congenital adrenal hyperplasia due to 17 Alpha-hydroxylase deficiency, corticosterone methyl oxidase I deficiency (cmo I), and adrenal hyperplasia type 3 or congenital adrenal hyperplasia due to 21-hydroxylase deficiency.	http://www.hmdb.ca/metabolites/HMDB0002802

Cotinine ; HMDB0001046	Cotinine, also known as (S)-cotinine or cotininum, belongs to the class of organic compounds known as pyrrolidinylpyridines. Pyrrolidinylpyridines are compounds containing a pyrrolidinylpyridine ring system, which consists of a pyrrolidine ring linked to a pyridine ring. Cotinine exists as a solid, soluble (in water), and a strong basic compound (based on its pKa). Cotinine has been found throughout most human tissues, and has also been primarily detected in urine, saliva, blood, and cerebrospinal fluid. Within the cell, cotinine is primarily located in the cytoplasm. Cotinine participates in a number of enzymatic reactions. In particular, Cotinine can be biosynthesized from nicotine imine; which is mediated by the enzyme aldehyde oxidase. In addition, Cotinine can be converted into hydroxycotinine through the action of the enzyme cytochrome P450 2A6. In humans, cotinine is involved in the nicotine action pathway and the nicotine metabolism pathway. Outside of the human body, cotinine can be found in a number of food items such as onion-family vegetables, rowanberry, ginger, and swamp cabbage. This makes cotinine a potential biomarker for the consumption of these food products. Cotinine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001046

Cotinine ; HMDB01046	Cotinine, also known as (S)-cotinine or cotininum, belongs to the class of organic compounds known as pyrrolidinylpyridines. Pyrrolidinylpyridines are compounds containing a pyrrolidinylpyridine ring system, which consists of a pyrrolidine ring linked to a pyridine ring. Cotinine exists as a solid, soluble (in water), and a strong basic compound (based on its pKa). Cotinine has been found throughout most human tissues, and has also been primarily detected in urine, saliva, blood, and cerebrospinal fluid. Within the cell, cotinine is primarily located in the cytoplasm. Cotinine participates in a number of enzymatic reactions. In particular, Cotinine can be biosynthesized from nicotine imine; which is mediated by the enzyme aldehyde oxidase. In addition, Cotinine can be converted into hydroxycotinine through the action of the enzyme cytochrome P450 2A6. In humans, cotinine is involved in the nicotine action pathway and the nicotine metabolism pathway. Outside of the human body, cotinine can be found in a number of food items such as onion-family vegetables, rowanberry, ginger, and swamp cabbage. This makes cotinine a potential biomarker for the consumption of these food products. Cotinine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001046

Creatine ; HMDB0000064	Creatine, also known as cosmocair C 100 or krebiozon, belongs to the class of organic compounds known as alpha amino acids and derivatives. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon), or a derivative thereof. Creatine is a drug which is used for nutritional supplementation, also for treating dietary shortage or imbalance. Creatine exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Creatine has been found throughout most human tissues, and has also been detected in most biofluids, including sweat, blood, saliva, and breast milk. Within the cell, creatine is primarily located in the cytoplasm, mitochondria and myelin sheath. Creatine participates in a number of enzymatic reactions. In particular, S-Adenosylmethionine and creatine can be biosynthesized from guanidoacetic acid and S-adenosylhomocysteine; which is catalyzed by the enzyme guanidinoacetate N-methyltransferase. In addition, S-Adenosylhomocysteine and creatine can be biosynthesized from S-adenosylmethionine and guanidoacetic acid through the action of the enzyme guanidinoacetate N-methyltransferase. In humans, creatine is involved in the glycine and serine metabolism pathway and the arginine and proline metabolism pathway. Creatine is also involved in several metabolic disorders, some of which include the NON ketotic hyperglycinemia pathway, creatine deficiency, guanidinoacetate methyltransferase deficiency, L-arginine:glycine amidinotransferase deficiency, and the hyperprolinemia type I pathway. Creatine is a potentially toxic compound. Creatine has been found to be associated with several diseases known as rhabdomyolysis, cirrhosis, cerebral creatine deficiency syndrome 3, and schizophrenia; creatine has also been linked to	http://www.hmdb.ca/metabolites/HMDB0000064

	the inborn metabolic disorders including hypermethioninemia.	

Creatine ; HMDB00064	Creatine, also known as cosmocair C 100 or krebiozon, belongs to the class of organic compounds known as alpha amino acids and derivatives. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon), or a derivative thereof. Creatine is a drug which is used for nutritional supplementation, also for treating dietary shortage or imbalance. Creatine exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Creatine has been found throughout most human tissues, and has also been detected in most biofluids, including sweat, blood, saliva, and breast milk. Within the cell, creatine is primarily located in the cytoplasm, mitochondria and myelin sheath. Creatine participates in a number of enzymatic reactions. In particular, S-Adenosylmethionine and creatine can be biosynthesized from guanidoacetic acid and S-adenosylhomocysteine; which is catalyzed by the enzyme guanidinoacetate N-methyltransferase. In addition, S-Adenosylhomocysteine and creatine can be biosynthesized from S-adenosylmethionine and guanidoacetic acid through the action of the enzyme guanidinoacetate N-methyltransferase. In humans, creatine is involved in the glycine and serine metabolism pathway and the arginine and proline metabolism pathway. Creatine is also involved in several metabolic disorders, some of which include the NON ketotic hyperglycinemia pathway, creatine deficiency, guanidinoacetate methyltransferase deficiency, L-arginine:glycine amidinotransferase deficiency, and the hyperprolinemia type I pathway. Creatine is a potentially toxic compound. Creatine has been found to be associated with several diseases known as rhabdomyolysis, cirrhosis, cerebral creatine deficiency syndrome 3, and schizophrenia; creatine has also been linked to	http://www.hmdb.ca/metabolites/HMDB0000064

	the inborn metabolic disorders including hypermethioninemia.	
Creatinine ; HMDB0000562	Creatinine, also known as krebiozen, belongs to the class of organic compounds known as alpha amino acids and derivatives. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon), or a derivative thereof. Creatinine exists as a solid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). Creatinine has been found throughout most human tissues, and has also been detected in most biofluids, including sweat, blood, urine, and feces. Within the cell, creatinine is primarily located in the cytoplasm. Creatinine can be biosynthesized from creatine. Outside of the human body, creatinine can be found in a number of food items such as annual wild rice, pepper (c. frutescens), prunus (cherry, plum), and kumquat. This makes creatinine a potential biomarker for the consumption of these food products. Creatinine has been found to be associated with several diseases known as hypoparathyroidism-retardation-dysmorphism syndrome, familial partial lipodystrophy, long-chain fatty acids, defect in transport of, and lipodystrophy, congenital generalized; creatinine has also been linked to the inborn metabolic disorders including phenylketonuria.	http://www.hmdb.ca/metabolites/HMDB0000562

Creatinine ; HMDB00562	Creatinine, also known as krebiozen, belongs to the class of organic compounds known as alpha amino acids and derivatives. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon), or a derivative thereof. Creatinine exists as a solid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). Creatinine has been found throughout most human tissues, and has also been detected in most biofluids, including sweat, blood, urine, and feces. Within the cell, creatinine is primarily located in the cytoplasm. Creatinine can be biosynthesized from creatine. Outside of the human body, creatinine can be found in a number of food items such as annual wild rice, pepper (c. frutescens), prunus (cherry, plum), and kumquat. This makes creatinine a potential biomarker for the consumption of these food products. Creatinine has been found to be associated with several diseases known as hypoparathyroidism-retardation-dysmorphism syndrome, familial partial lipodystrophy, long-chain fatty acids, defect in transport of, and lipodystrophy, congenital generalized; creatinine has also been linked to the inborn metabolic disorders including phenylketonuria.	http://www.hmdb.ca/metabolites/HMDB0000562
Cysteineglutathione disulfide ; HMDB0000656	Cysteineglutathione disulfide, also known as cyssg or nereithione, belongs to the class of organic compounds known as oligopeptides. These are organic compounds containing a sequence of between three and ten alpha-amino acids joined by peptide bonds. Cysteineglutathione disulfide exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). Cysteineglutathione disulfide has been primarily detected in saliva. Within the cell, cysteineglutathione disulfide is primarily located in the cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000656

Cysteinylglycine ; HMDB0000078	L-Cysteinylglycine, also known as cys-gly or CG, belongs to the class of organic compounds known as dipeptides. These are organic compounds containing a sequence of exactly two alpha-amino acids joined by a peptide bond. L-Cysteinylglycine is slightly soluble (in water) and a weakly acidic compound (based on its pKa). L-Cysteinylglycine has been primarily detected in saliva, urine, blood, and cerebrospinal fluid. Within the cell, L-cysteinylglycine is primarily located in the cytoplasm. L-Cysteinylglycine exists in all eukaryotes, ranging from yeast to humans. In humans, L-cysteinylglycine is involved in the glutathione metabolism pathway. L-Cysteinylglycine is also involved in several metabolic disorders, some of which include Gamma-glutamyl-transpeptidase deficiency, glutathione synthetase deficiency, 5-oxoprolinase deficiency, and Gamma-glutamyltransferase deficiency. L-Cysteinylglycine has been linked to the inborn metabolic disorders including phenylketonuria.	http://www.hmdb.ca/metabolites/HMDB0000078
Cytidine ; HMDB0000089	Cytarabine, also known as ara-C or cytosar-u, belongs to the class of organic compounds known as pyrimidine nucleosides. Pyrimidine nucleosides are compounds comprising a pyrimidine base attached to a ribosyl or deoxyribosyl moiety. Cytarabine is a drug which is used for the treatment of acute non-lymphocytic leukemia, acute lymphocytic leukemia and blast phase of chronic myelocytic leukemia. Cytarabine exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Cytarabine has been detected in multiple biofluids, such as urine and blood. Within the cell, cytarabine is primarily located in the cytoplasm. Cytarabine can be biosynthesized from cytosine. Outside of the human body, cytarabine can be found in a number of food items such as guava, root vegetables, sweet orange, and herbs and spices. This makes cytarabine a potential biomarker for the consumption of these food products. Cytarabine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000089

Cytosine ; HMDB0000630	Cytosine, also known as C, belongs to the class of organic compounds known as pyrimidones. Pyrimidones are compounds that contain a pyrimidine ring, which bears a ketone. Pyrimidine is a 6-membered ring consisting of four carbon atoms and two nitrogen centers at the 1- and 3- ring positions. Cytosine exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Cytosine has been found throughout most human tissues, and has also been primarily detected in feces, urine, blood, and plasma. Cytosine exists in all eukaryotes, ranging from yeast to humans. Outside of the human body, cytosine can be found in a number of food items such as new zealand spinach, medlar, french plantain, and hickory nut. This makes cytosine a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000630
Cytosine ; HMDB00630	Cytosine, also known as C, belongs to the class of organic compounds known as pyrimidones. Pyrimidones are compounds that contain a pyrimidine ring, which bears a ketone. Pyrimidine is a 6-membered ring consisting of four carbon atoms and two nitrogen centers at the 1- and 3- ring positions. Cytosine exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Cytosine has been found throughout most human tissues, and has also been primarily detected in feces, urine, blood, and plasma. Cytosine exists in all eukaryotes, ranging from yeast to humans. Outside of the human body, cytosine can be found in a number of food items such as new zealand spinach, medlar, french plantain, and hickory nut. This makes cytosine a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000630

D-alpha-Aminobutyric acid ; HMDB0000650	, also known as D-2-aminobutyrate, belongs to the class of organic compounds known as d-alpha-amino acids. These are alpha amino acids which have the D-configuration of the alpha-carbon atom. Thus, is considered to be a fatty acid lipid molecule. is soluble (in water) and a moderately acidic compound (based on its pKa). has been primarily detected in saliva, feces, urine, and blood. Within the cell, is primarily located in the cytoplasm. Outside of the human body, can be found in a number of food items such as common pea, pulses, green bean, and nuts. This makes a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000650
D-alpha-Aminobutyric acid ; HMDB00650	, also known as D-2-aminobutyrate, belongs to the class of organic compounds known as d-alpha-amino acids. These are alpha amino acids which have the D-configuration of the alpha-carbon atom. Thus, is considered to be a fatty acid lipid molecule. is soluble (in water) and a moderately acidic compound (based on its pKa). has been primarily detected in saliva, feces, urine, and blood. Within the cell, is primarily located in the cytoplasm. Outside of the human body, can be found in a number of food items such as common pea, pulses, green bean, and nuts. This makes a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000650

D-Glucose ; HMDB0000122	D-Glucose, also known as dextrose or D-GLC, belongs to the class of organic compounds known as hexoses. These are monosaccharides in which the sugar unit is a is a six-carbon containing moeity. D-Glucose exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). D-Glucose has been found throughout most human tissues, and has also been detected in most biofluids, including sweat, saliva, blood, and urine. Within the cell, D-glucose is primarily located in the lysosome, endoplasmic reticulum, golgi and myelin sheath. D-Glucose exists in all eukaryotes, ranging from yeast to humans. D-Glucose participates in a number of enzymatic reactions. In particular, D-Glucose can be biosynthesized from glucose 1-phosphate through the action of the enzyme glucose-6-phosphatase. Furthermore, D-Glucose and uridine diphosphategalactose can be converted into uridine 5'-diphosphate and Alpha-lactose through the action of the enzyme lactose synthase. Furthermore, Ceramide (D18:1/18:0) and D-glucose can be biosynthesized from glucosylceramide and water; which is catalyzed by the enzyme glucosylceramidase. Finally, D-Glucose can be converted into glucose 6-phosphate; which is mediated by the enzyme hexokinase-2. In humans, D-glucose is involved in the metachromatic leukodystrophy (MLD) pathway, the triosephosphate isomerase pathway, the gliclazide action pathway, and the pancreas function pathway. D-Glucose is also involved in several metabolic disorders, some of which include the congenital disorder OF glycosylation CDG-iid pathway, the transfer OF acetyl groups into mitochondria pathway, the gaucher disease pathway, and the fanconi-bickel syndrome pathway. D-Glucose is a potentially toxic compound. D-Glucose has been found to be associated with several diseases known as hyperinsulinemic hypoglycemia, familial, 1, HHF1	http://www.hmdb.ca/metabolites/HMDB0000122

	and diabetes mellitus type 2; d-glucose has also been linked to several inborn metabolic disorders including 3-methyl-crotonyl-glycinuria, primary hypomagnesemia, and 3-hydroxy-3-methylglutaryl-CoA lyase deficiency.	

D-Glucose ; HMDB00122	D-Glucose, also known as dextrose or D-GLC, belongs to the class of organic compounds known as hexoses. These are monosaccharides in which the sugar unit is a is a six-carbon containing moeity. D-Glucose exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). D-Glucose has been found throughout most human tissues, and has also been detected in most biofluids, including sweat, saliva, blood, and urine. Within the cell, D-glucose is primarily located in the lysosome, endoplasmic reticulum, golgi and myelin sheath. D-Glucose exists in all eukaryotes, ranging from yeast to humans. D-Glucose participates in a number of enzymatic reactions. In particular, D-Glucose can be biosynthesized from glucose 1-phosphate through the action of the enzyme glucose-6-phosphatase. Furthermore, D-Glucose and uridine diphosphategalactose can be converted into uridine 5'-diphosphate and Alpha-lactose through the action of the enzyme lactose synthase. Furthermore, Ceramide (D18:1/18:0) and D-glucose can be biosynthesized from glucosylceramide and water; which is catalyzed by the enzyme glucosylceramidase. Finally, D-Glucose can be converted into glucose 6-phosphate; which is mediated by the enzyme hexokinase-2. In humans, D-glucose is involved in the metachromatic leukodystrophy (MLD) pathway, the triosephosphate isomerase pathway, the gliclazide action pathway, and the pancreas function pathway. D-Glucose is also involved in several metabolic disorders, some of which include the congenital disorder OF glycosylation CDG-iid pathway, the transfer OF acetyl groups into mitochondria pathway, the gaucher disease pathway, and the fanconi-bickel syndrome pathway. D-Glucose is a potentially toxic compound. D-Glucose has been found to be associated with several diseases known as hyperinsulinemic hypoglycemia, familial, 1, HHF1	http://www.hmdb.ca/metabolites/HMDB0000122

	and diabetes mellitus type 2; d-glucose has also been linked to several inborn metabolic disorders including 3-methyl-crotonyl-glycinuria, primary hypomagnesemia, and 3-hydroxy-3-methylglutaryl-CoA lyase deficiency.	
D-Glucuronic acid ; HMDB0000127	D-Glucuronic acid, also known as glcaa or D-glucuronate, belongs to the class of organic compounds known as glucuronic acid derivatives. Glucuronic acid derivatives are compounds containing a glucuronic acid moiety (or a derivative), which consists of a glucose moiety with the C6 carbon oxidized to a carboxylic acid. D-Glucuronic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). D-Glucuronic acid has been found in human liver and kidney tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, D-glucuronic acid is primarily located in the cytoplasm, lysosome and endoplasmic reticulum. D-Glucuronic acid can be biosynthesized from isovalerylglucuronide through the action of the enzyme Beta-glucuronidase. In humans, D-glucuronic acid is involved in the inositol metabolism pathway and the starch and sucrose metabolism pathway. D-Glucuronic acid is also involved in several metabolic disorders, some of which include the glycogenosis, type iii. cori disease, debrancher glycogenosis pathway, sucrase-isomaltase deficiency, the mucopolysaccharidosis vi. sly syndrome pathway, and the glycogenosis, type vi. hers disease pathway.	http://www.hmdb.ca/metabolites/HMDB0000127

D-Glucuronic acid ; HMDB00127	D-Glucuronic acid, also known as glcaa or D-glucuronate, belongs to the class of organic compounds known as glucuronic acid derivatives. Glucuronic acid derivatives are compounds containing a glucuronic acid moiety (or a derivative), which consists of a glucose moiety with the C6 carbon oxidized to a carboxylic acid. D-Glucuronic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). D-Glucuronic acid has been found in human liver and kidney tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, D-glucuronic acid is primarily located in the cytoplasm, lysosome and endoplasmic reticulum. D-Glucuronic acid can be biosynthesized from isovalerylglucuronide through the action of the enzyme Beta-glucuronidase. In humans, D-glucuronic acid is involved in the inositol metabolism pathway and the starch and sucrose metabolism pathway. D-Glucuronic acid is also involved in several metabolic disorders, some of which include the glycogenosis, type iii. cori disease, debrancher glycogenosis pathway, sucrase-isomaltase deficiency, the mucopolysaccharidosis vi. sly syndrome pathway, and the glycogenosis, type vi. hers disease pathway.	http://www.hmdb.ca/metabolites/HMDB0000127
D-Leucic acid ; HMDB0000624	D-Leucic acid, also known as D-leucate or delta-leucic acid, belongs to the class of organic compounds known as hydroxy fatty acids. These are fatty acids in which the chain bears a hydroxyl group. D-Leucic acid is soluble (in water) and a weakly acidic compound (based on its pKa). D-Leucic acid has been detected in multiple biofluids, such as blood and urine. Within the cell, D-leucic acid is primarily located in the cytoplasm and adiposome. D-Leucic acid can be converted into (R)-2-hydroxy-4-methylpentanoyl-CoA.	http://www.hmdb.ca/metabolites/HMDB0000624

D-Maltose ; HMDB0000163	D-Maltose, also known as alpha-malt sugar or finetose F, belongs to the class of organic compounds known as o-glycosyl compounds. These are glycoside in which a sugar group is bonded through one carbon to another group via a O-glycosidic bond. D-Maltose exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). D-Maltose has been found in human liver and kidney tissues, and has also been primarily detected in feces, urine, blood, and sweat. Within the cell, D-maltose is primarily located in the cytoplasm and lysosome. D-Maltose participates in a number of enzymatic reactions. In particular, D-Maltose can be converted into Alpha-D-glucose; which is mediated by the enzyme maltase-glucoamylase, intestinal. In addition, D-Maltose can be converted into Alpha-D-glucose through its interaction with the enzyme glycogen debranching enzyme. In humans, D-maltose is involved in the starch and sucrose metabolism pathway. D-Maltose is also involved in several metabolic disorders, some of which include the glycogenosis, type iv. amylopectinosis, anderson disease pathway, glycogen synthetase deficiency, sucrase-isomaltase deficiency, and the glycogenosis, type vi. hers disease pathway.	http://www.hmdb.ca/metabolites/HMDB0000163

D-Mannose ; HMDB0000169	D-Mannose, also known as mannopyranose or carubinose, belongs to the class of organic compounds known as hexoses. These are monosaccharides in which the sugar unit is a is a six-carbon containing moeity. D-Mannose exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). D-Mannose has been found throughout most human tissues, and has also been detected in most biofluids, including cerebrospinal fluid, breast milk, feces, and urine. D-Mannose can be found anywhere throughout the human cell, such as in golgi, endoplasmic reticulum, lysosome, and cytoplasm. D-Mannose exists in all eukaryotes, ranging from yeast to humans. D-Mannose participates in a number of enzymatic reactions. In particular, D-Mannose can be converted into mannose 6-phosphate through the action of the enzyme hexokinase-1. In addition, D-Galactose and D-mannose can be converted into epimelibiose; which is mediated by the enzyme Alpha-galactosidase a. In humans, D-mannose is involved in the fructose and mannose degradation pathway, the galactose metabolism pathway, and the fructose intolerance, hereditary pathway. D-Mannose is also involved in a couple of metabolic disorders, which include the fructosuria pathway and the galactosemia pathway.	http://www.hmdb.ca/metabolites/HMDB0000169

D-Ribose ; HMDB0000283	D-Ribose, also known as ribose, belongs to the class of organic compounds known as pentoses. These are monosaccharides in which the carbohydrate moiety contains five carbon atoms. D-Ribose exists as a solid, very soluble (in water), and a very weakly acidic compound (based on its pKa). D-Ribose has been found throughout most human tissues, and has also been detected in most biofluids, including blood, urine, saliva, and cerebrospinal fluid. D-Ribose exists in all eukaryotes, ranging from yeast to humans. D-Ribose can be converted into D-ribose 5-phosphate through its interaction with the enzyme ribokinase. In humans, D-ribose is involved in the pentose phosphate pathway. D-Ribose is also involved in a few metabolic disorders, which include glucose-6-phosphate dehydrogenase deficiency, transaldolase deficiency, and ribose-5-phosphate isomerase deficiency. Outside of the human body, D-ribose can be found in a number of food items such as fruits, other soy product, chinese mustard, and cucurbita (gourd). This makes D-ribose a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000283
D-Threitol ; HMDB0004136	D-Threitol, also known as D-threo-tetritol, belongs to the class of organic compounds known as sugar alcohols. These are hydrogenated forms of carbohydrate in which the carbonyl group (aldehyde or ketone, reducing sugar) has been reduced to a primary or secondary hydroxyl group. D-Threitol is very soluble (in water) and a very weakly acidic compound (based on its pKa). D-Threitol has been primarily detected in feces, urine, blood, and cerebrospinal fluid. D-Threitol has been linked to the inborn metabolic disorders including ribose-5-phosphate isomerase deficiency.	http://www.hmdb.ca/metabolites/HMDB0004136

D-Threitol ; HMDB04136	D-Threitol, also known as D-threo-tetritol, belongs to the class of organic compounds known as sugar alcohols. These are hydrogenated forms of carbohydrate in which the carbonyl group (aldehyde or ketone, reducing sugar) has been reduced to a primary or secondary hydroxyl group. D-Threitol is very soluble (in water) and a very weakly acidic compound (based on its pKa). D-Threitol has been primarily detected in feces, urine, blood, and cerebrospinal fluid. D-Threitol has been linked to the inborn metabolic disorders including ribose-5-phosphate isomerase deficiency.	http://www.hmdb.ca/metabolites/HMDB0004136
D-Urobilin ; HMDB0004161	D-Urobilin belongs to the class of organic compounds known as bilirubins. These are organic compounds containing a dicarboxylic acyclic tetrapyrrole derivative. D-Urobilin is considered to be a practically insoluble (in water) and relatively neutral molecule. D-Urobilin has been detected in multiple biofluids, such as feces and urine.	http://www.hmdb.ca/metabolites/HMDB0004161
D-Urobilinogen ; HMDB0004158	D-Urobilinogen belongs to the class of organic compounds known as bilirubins. These are organic compounds containing a dicarboxylic acyclic tetrapyrrole derivative. D-Urobilinogen is considered to be a practically insoluble (in water) and relatively neutral molecule. D-Urobilinogen has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, D-urobilinogen is primarily located in the membrane (predicted from logP). D-Urobilinogen exists in all eukaryotes, ranging from yeast to humans. In humans, D-urobilinogen is involved in the porphyrin metabolism pathway. D-Urobilinogen is also involved in several metabolic disorders, some of which include the acute intermittent porphyria pathway, congenital erythropoietic porphyria (cep) or gunther disease pathway, the hereditary coproporphyria (HCP) pathway, and the porphyria variegata (PV) pathway.	http://www.hmdb.ca/metabolites/HMDB0004158

D-Urobilinogen ; HMDB04158	D-Urobilinogen belongs to the class of organic compounds known as bilirubins. These are organic compounds containing a dicarboxylic acyclic tetrapyrrole derivative. D-Urobilinogen is considered to be a practically insoluble (in water) and relatively neutral molecule. D-Urobilinogen has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, D-urobilinogen is primarily located in the membrane (predicted from logP). D-Urobilinogen exists in all eukaryotes, ranging from yeast to humans. In humans, D-urobilinogen is involved in the porphyrin metabolism pathway. D-Urobilinogen is also involved in several metabolic disorders, some of which include the acute intermittent porphyria pathway, congenital erythropoietic porphyria (cep) or gunther disease pathway, the hereditary coproporphyria (HCP) pathway, and the porphyria variegata (PV) pathway.	http://www.hmdb.ca/metabolites/HMDB0004158
D-Xylose ; HMDB0000098	D-Xylose, also known as xylose or xylopyranose, belongs to the class of organic compounds known as pentoses. These are monosaccharides in which the carbohydrate moiety contains five carbon atoms. D-Xylose exists as a solid, very soluble (in water), and a very weakly acidic compound (based on its pKa). D-Xylose has been found throughout all human tissues, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, D-xylose is primarily located in the cytoplasm and lysosome. Outside of the human body, D-xylose can be found in flaxseed. This makes D-xylose a potential biomarker for the consumption of this food product. D-Xylose is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000098

Decanoylcarnitine ; HMDB0000651	Decanoylcarnitine belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, decanoylcarnitine is considered to be a fatty ester lipid molecule. Decanoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. Decanoylcarnitine has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, decanoylcarnitine is primarily located in the membrane (predicted from logP) and cytoplasm. Decanoylcarnitine has been linked to several inborn metabolic disorders including celiac disease and glutaric aciduria II.	http://www.hmdb.ca/metabolites/HMDB0000651
Decanoylcarnitine ; HMDB00651	Decanoylcarnitine belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, decanoylcarnitine is considered to be a fatty ester lipid molecule. Decanoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. Decanoylcarnitine has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, decanoylcarnitine is primarily located in the membrane (predicted from logP) and cytoplasm. Decanoylcarnitine has been linked to several inborn metabolic disorders including celiac disease and glutaric aciduria II.	http://www.hmdb.ca/metabolites/HMDB0000651
Delta-Hexanolactone ; HMDB0000453	Delta-Hexanolactone, also known as -hexanolactone or epsilon-caprolactone, belongs to the class of organic compounds known as delta valerolactones. These are cyclic organic compounds containing an oxan-2- one moiety. Delta-Hexanolactone is soluble (in water) and an extremely weak basic (essentially neutral) compound (based on its pKa). Within the cell, Delta-hexanolactone is primarily located in the cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000453

Deoxycholic acid ; HMDB0000626	Deoxycholic acid, also known as deoxycholate or acid, deoxycholic, belongs to the class of organic compounds known as dihydroxy bile acids, alcohols and derivatives. Dihydroxy bile acids, alcohols and derivatives are compounds containing or derived from a bile acid or alcohol, and which bears exactly two carboxylic acid groups. Deoxycholic acid is a drug which is used for improvement in appearance of moderate to severe fullness associated with submental fat in adults. . Deoxycholic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Deoxycholic acid has been found in human hepatic tissue and intestine tissues, and has also been primarily detected in bile, feces, urine, and blood. Within the cell, deoxycholic acid is primarily located in the membrane (predicted from logP) and cytoplasm. In humans, deoxycholic acid is involved in the cerebrotendinous xanthomatosis (CTX) pathway, bile acid biosynthesis pathway, congenital bile acid synthesis defect type II pathway, and congenital bile acid synthesis defect type III pathway. Deoxycholic acid is also involved in a few metabolic disorders, which include the familial hypercholanemia (fhca) pathway, the zellweger syndrome pathway, and 27-hydroxylase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000626

Deoxycholic acid ; HMDB00626	Deoxycholic acid, also known as deoxycholate or acid, deoxycholic, belongs to the class of organic compounds known as dihydroxy bile acids, alcohols and derivatives. Dihydroxy bile acids, alcohols and derivatives are compounds containing or derived from a bile acid or alcohol, and which bears exactly two carboxylic acid groups. Deoxycholic acid is a drug which is used for improvement in appearance of moderate to severe fullness associated with submental fat in adults. . Deoxycholic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Deoxycholic acid has been found in human hepatic tissue and intestine tissues, and has also been primarily detected in bile, feces, urine, and blood. Within the cell, deoxycholic acid is primarily located in the membrane (predicted from logP) and cytoplasm. In humans, deoxycholic acid is involved in the cerebrotendinous xanthomatosis (CTX) pathway, bile acid biosynthesis pathway, congenital bile acid synthesis defect type II pathway, and congenital bile acid synthesis defect type III pathway. Deoxycholic acid is also involved in a few metabolic disorders, which include the familial hypercholanemia (fhca) pathway, the zellweger syndrome pathway, and 27-hydroxylase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000626

Deoxycholic acid glycine conjugate ; HMDB0000631	Deoxycholic acid glycine conjugate, also known as glycodeoxycholate or deoxycholylglycine, belongs to the class of organic compounds known as glycinated bile acids and derivatives. Glycinated bile acids and derivatives are compounds with a structure characterized by the presence of a glycine linked to a bile acid skeleton. Deoxycholic acid glycine conjugate is considered to be a practically insoluble (in water) and relatively neutral molecule. Deoxycholic acid glycine conjugate has been found in human hepatic tissue and prostate tissues, and has also been primarily detected in bile, feces, urine, and blood. Within the cell, deoxycholic acid glycine conjugate is primarily located in the membrane (predicted from logP) and cytoplasm. In humans, deoxycholic acid glycine conjugate is involved in the cerebrotendinous xanthomatosis (CTX) pathway, congenital bile acid synthesis defect type II pathway, bile acid biosynthesis pathway, and congenital bile acid synthesis defect type III pathway. Deoxycholic acid glycine conjugate is also involved in a few metabolic disorders, which include the familial hypercholanemia (fhca) pathway, 27-hydroxylase deficiency, and the zellweger syndrome pathway.	http://www.hmdb.ca/metabolites/HMDB0000631

Deoxycholic acid glycine conjugate ; HMDB00631	Deoxycholic acid glycine conjugate, also known as glycodeoxycholate or deoxycholylglycine, belongs to the class of organic compounds known as glycinated bile acids and derivatives. Glycinated bile acids and derivatives are compounds with a structure characterized by the presence of a glycine linked to a bile acid skeleton. Deoxycholic acid glycine conjugate is considered to be a practically insoluble (in water) and relatively neutral molecule. Deoxycholic acid glycine conjugate has been found in human hepatic tissue and prostate tissues, and has also been primarily detected in bile, feces, urine, and blood. Within the cell, deoxycholic acid glycine conjugate is primarily located in the membrane (predicted from logP) and cytoplasm. In humans, deoxycholic acid glycine conjugate is involved in the cerebrotendinous xanthomatosis (CTX) pathway, congenital bile acid synthesis defect type II pathway, bile acid biosynthesis pathway, and congenital bile acid synthesis defect type III pathway. Deoxycholic acid glycine conjugate is also involved in a few metabolic disorders, which include the familial hypercholanemia (fhca) pathway, 27-hydroxylase deficiency, and the zellweger syndrome pathway.	http://www.hmdb.ca/metabolites/HMDB0000631

Deoxyuridine ; HMDB0000012	Deoxyuridine, also known as dU, belongs to the class of organic compounds known as pyrimidine 2'-deoxyribonucleosides. Pyrimidine 2'-deoxyribonucleosides are compounds consisting of a pyrimidine linked to a ribose which lacks a hydroxyl group at position 2. Deoxyuridine exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Deoxyuridine has been found throughout most human tissues, and has also been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, deoxyuridine is primarily located in the mitochondria and nucleus. Deoxyuridine participates in a number of enzymatic reactions. In particular, Deoxyuridine can be biosynthesized from deoxycytidine through the action of the enzyme cytidine deaminase. In addition, Deoxyuridine can be converted into uracil and deoxyribose 1-phosphate through its interaction with the enzyme thymidine phosphorylase. In humans, deoxyuridine is involved in the pyrimidine metabolism pathway. Deoxyuridine is also involved in several metabolic disorders, some of which include the mngie (mitochondrial neurogastrointestinal encephalopathy) pathway, UMP synthase deficiency (orotic aciduria), Beta ureidopropionase deficiency, and dihydropyrimidinase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000012

DG(16:0/16:0/0:0) ; HMDB0007098	DG(16:0/16:0/0:0), also known as DAG(16:0/16:0) or diacylglycerol(32:0), belongs to the class of organic compounds known as 1,2-diacylglycerols. These are diacylglycerols containing a glycerol acylated at positions 1 and 2. Thus, DG(16:0/16:0/0:0) is considered to be a diradylglycerol lipid molecule. DG(16:0/16:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. DG(16:0/16:0/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, DG(16:0/16:0/0:0) is primarily located in the membrane (predicted from logP). DG(16:0/16:0/0:0) participates in a number of enzymatic reactions. In particular, DG(16:0/16:0/0:0) can be biosynthesized from PA(16:0/16:0) through the action of the enzyme phosphatidate phosphatase. Furthermore, DG(16:0/16:0/0:0) and myristoleoyl-CoA can be converted into TG(16:0/16:0/14:1(9Z)); which is catalyzed by the enzyme diacylglycerol O-acyltransferase. Furthermore, DG(16:0/16:0/0:0) can be biosynthesized from PA(16:0/16:0) through the action of the enzyme phosphatidate phosphatase. Finally, DG(16:0/16:0/0:0) and palmityl-CoA can be converted into TG(16:0/16:0/16:0)[iso]; which is mediated by the enzyme diacylglycerol O-acyltransferase. In humans, DG(16:0/16:0/0:0) is involved in the glycerolipid metabolism pathway, phospholipid biosynthesis pathway, the D-glyceric acidura pathway, and phosphatidylethanolamine biosynthesis pe(16:0/16:0) pathway. DG(16:0/16:0/0:0) is also involved in several metabolic disorders, some of which include de novo triacylglycerol biosynthesis TG(16:0/16:0/22:5(4Z,7Z,10Z,13Z,16Z)) pathway, de novo triacylglycerol biosynthesis TG(16:0/16:0/20:5(5Z,8Z,11Z,14Z,17Z)) pathway, familial lipoprotein lipase deficiency, and	http://www.hmdb.ca/metabolites/HMDB0007098

	de novo triacylglycerol biosynthesis TG(16:0/16:0/14:1(9Z)) pathway.	

DG(16:0/16:0/0:0) ; HMDB07098	DG(16:0/16:0/0:0), also known as DAG(16:0/16:0) or diacylglycerol(32:0), belongs to the class of organic compounds known as 1,2-diacylglycerols. These are diacylglycerols containing a glycerol acylated at positions 1 and 2. Thus, DG(16:0/16:0/0:0) is considered to be a diradylglycerol lipid molecule. DG(16:0/16:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. DG(16:0/16:0/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, DG(16:0/16:0/0:0) is primarily located in the membrane (predicted from logP). DG(16:0/16:0/0:0) participates in a number of enzymatic reactions. In particular, DG(16:0/16:0/0:0) can be biosynthesized from PA(16:0/16:0) through the action of the enzyme phosphatidate phosphatase. Furthermore, DG(16:0/16:0/0:0) and myristoleoyl-CoA can be converted into TG(16:0/16:0/14:1(9Z)); which is catalyzed by the enzyme diacylglycerol O-acyltransferase. Furthermore, DG(16:0/16:0/0:0) can be biosynthesized from PA(16:0/16:0) through the action of the enzyme phosphatidate phosphatase. Finally, DG(16:0/16:0/0:0) and palmityl-CoA can be converted into TG(16:0/16:0/16:0)[iso]; which is mediated by the enzyme diacylglycerol O-acyltransferase. In humans, DG(16:0/16:0/0:0) is involved in the glycerolipid metabolism pathway, phospholipid biosynthesis pathway, the D-glyceric acidura pathway, and phosphatidylethanolamine biosynthesis pe(16:0/16:0) pathway. DG(16:0/16:0/0:0) is also involved in several metabolic disorders, some of which include de novo triacylglycerol biosynthesis TG(16:0/16:0/22:5(4Z,7Z,10Z,13Z,16Z)) pathway, de novo triacylglycerol biosynthesis TG(16:0/16:0/20:5(5Z,8Z,11Z,14Z,17Z)) pathway, familial lipoprotein lipase deficiency, and	http://www.hmdb.ca/metabolites/HMDB0007098

	de novo triacylglycerol biosynthesis TG(16:0/16:0/14:1(9Z)) pathway.	
DG(16:0/16:1(9Z)/0:0) ; HMDB0007099	DG(16:0/16:1(9Z)/0:0)[iso2], also known as diacylglycerol or DAG(16:0/16:1), belongs to the class of organic compounds known as 1,2-diacylglycerols. These are diacylglycerols containing a glycerol acylated at positions 1 and 2. Thus, DG(16:0/16:1(9Z)/0:0)[iso2] is considered to be a diradylglycerol lipid molecule. DG(16:0/16:1(9Z)/0:0)[iso2] is considered to be a practically insoluble (in water) and relatively neutral molecule. DG(16:0/16:1(9Z)/0:0)[iso2] has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, DG(16:0/16:1(9Z)/0:0)[iso2] is primarily located in the membrane (predicted from logP). In humans, DG(16:0/16:1(9Z)/0:0)[iso2] is involved in phosphatidylcholine biosynthesis PC(16:0/16:1(9Z)) pathway and phosphatidylethanolamine biosynthesis pe(16:0/16:1(9Z)) pathway. DG(16:0/16:1(9Z)/0:0)[iso2] is also involved in several metabolic disorders, some of which include de novo triacylglycerol biosynthesis TG(16:0/16:1(9Z)/22:5(7Z,10Z,13Z,16Z,19Z)) pathway, de novo triacylglycerol biosynthesis TG(16:0/16:1(9Z)/20:1(11Z)) pathway, de novo triacylglycerol biosynthesis TG(16:0/16:1(9Z)/18:3(6Z,9Z,12Z)) pathway, and de novo triacylglycerol biosynthesis TG(16:0/16:1(9Z)/16:0) pathway.	http://www.hmdb.ca/metabolites/HMDB0007099

DG(16:0/16:1(9Z)/0:0) ; HMDB07099	DG(16:0/16:1(9Z)/0:0)[iso2], also known as diacylglycerol or DAG(16:0/16:1), belongs to the class of organic compounds known as 1,2-diacylglycerols. These are diacylglycerols containing a glycerol acylated at positions 1 and 2. Thus, DG(16:0/16:1(9Z)/0:0)[iso2] is considered to be a diradylglycerol lipid molecule. DG(16:0/16:1(9Z)/0:0)[iso2] is considered to be a practically insoluble (in water) and relatively neutral molecule. DG(16:0/16:1(9Z)/0:0)[iso2] has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, DG(16:0/16:1(9Z)/0:0)[iso2] is primarily located in the membrane (predicted from logP). In humans, DG(16:0/16:1(9Z)/0:0)[iso2] is involved in phosphatidylcholine biosynthesis PC(16:0/16:1(9Z)) pathway and phosphatidylethanolamine biosynthesis pe(16:0/16:1(9Z)) pathway. DG(16:0/16:1(9Z)/0:0)[iso2] is also involved in several metabolic disorders, some of which include de novo triacylglycerol biosynthesis TG(16:0/16:1(9Z)/22:5(7Z,10Z,13Z,16Z,19Z)) pathway, de novo triacylglycerol biosynthesis TG(16:0/16:1(9Z)/20:1(11Z)) pathway, de novo triacylglycerol biosynthesis TG(16:0/16:1(9Z)/18:3(6Z,9Z,12Z)) pathway, and de novo triacylglycerol biosynthesis TG(16:0/16:1(9Z)/16:0) pathway.	http://www.hmdb.ca/metabolites/HMDB0007099

DG(16:0/18:0/0:0) ; HMDB0007100	DG(16:0/18:0/0:0)[iso2], also known as DAG(16:0/18:0) or diacylglycerol(16:0/18:0), belongs to the class of organic compounds known as 1,2-diacylglycerols. These are diacylglycerols containing a glycerol acylated at positions 1 and 2. Thus, DG(16:0/18:0/0:0)[iso2] is considered to be a diradylglycerol lipid molecule. DG(16:0/18:0/0:0)[iso2] is considered to be a practically insoluble (in water) and relatively neutral molecule. DG(16:0/18:0/0:0)[iso2] has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, DG(16:0/18:0/0:0)[iso2] is primarily located in the membrane (predicted from logP). In humans, DG(16:0/18:0/0:0)[iso2] is involved in phosphatidylethanolamine biosynthesis pe(16:0/18:0) pathway and phosphatidylcholine biosynthesis PC(16:0/18:0) pathway. DG(16:0/18:0/0:0)[iso2] is also involved in several metabolic disorders, some of which include de novo triacylglycerol biosynthesis TG(16:0/18:0/22:4(7Z,10Z,13Z,16Z)) pathway, de novo triacylglycerol biosynthesis TG(16:0/18:0/18:1(9Z)) pathway, de novo triacylglycerol biosynthesis TG(16:0/18:0/18:1(11Z)) pathway, and de novo triacylglycerol biosynthesis TG(16:0/18:0/20:3(5Z,8Z,11Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0007100

DG(16:0/18:0/0:0) ; HMDB07100	DG(16:0/18:0/0:0)[iso2], also known as DAG(16:0/18:0) or diacylglycerol(16:0/18:0), belongs to the class of organic compounds known as 1,2-diacylglycerols. These are diacylglycerols containing a glycerol acylated at positions 1 and 2. Thus, DG(16:0/18:0/0:0)[iso2] is considered to be a diradylglycerol lipid molecule. DG(16:0/18:0/0:0)[iso2] is considered to be a practically insoluble (in water) and relatively neutral molecule. DG(16:0/18:0/0:0)[iso2] has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, DG(16:0/18:0/0:0)[iso2] is primarily located in the membrane (predicted from logP). In humans, DG(16:0/18:0/0:0)[iso2] is involved in phosphatidylethanolamine biosynthesis pe(16:0/18:0) pathway and phosphatidylcholine biosynthesis PC(16:0/18:0) pathway. DG(16:0/18:0/0:0)[iso2] is also involved in several metabolic disorders, some of which include de novo triacylglycerol biosynthesis TG(16:0/18:0/22:4(7Z,10Z,13Z,16Z)) pathway, de novo triacylglycerol biosynthesis TG(16:0/18:0/18:1(9Z)) pathway, de novo triacylglycerol biosynthesis TG(16:0/18:0/18:1(11Z)) pathway, and de novo triacylglycerol biosynthesis TG(16:0/18:0/20:3(5Z,8Z,11Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0007100

DG(16:0/18:1(9Z)/0:0) ; HMDB0007102	DG(16:0/18:1(9Z)/0:0), also known as diacylglycerol or DAG(16:0/18:1), belongs to the class of organic compounds known as 1,2-diacylglycerols. These are diacylglycerols containing a glycerol acylated at positions 1 and 2. Thus, DG(16:0/18:1(9Z)/0:0) is considered to be a diradylglycerol lipid molecule. DG(16:0/18:1(9Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. DG(16:0/18:1(9Z)/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, DG(16:0/18:1(9Z)/0:0) is primarily located in the membrane (predicted from logP). DG(16:0/18:1(9Z)/0:0) participates in a number of enzymatic reactions. In particular, DG(16:0/18:1(9Z)/0:0) can be biosynthesized from PA(16:0/18:1(9Z)) through the action of the enzyme phosphatidate phosphatase. Furthermore, DG(16:0/18:1(9Z)/0:0) and myristoleoyl-CoA can be converted into TG(16:0/18:1(9Z)/14:1(9Z)); which is catalyzed by the enzyme diacylglycerol O-acyltransferase. Furthermore, DG(16:0/18:1(9Z)/0:0) can be biosynthesized from PA(16:0/18:1(9Z)); which is mediated by the enzyme phosphatidate phosphatase. Furthermore, DG(16:0/18:1(9Z)/0:0) and palmityl-CoA can be converted into TG(16:0/18:1(9Z)/16:0) through the action of the enzyme diacylglycerol O-acyltransferase. Furthermore, DG(16:0/18:1(9Z)/0:0) can be biosynthesized from PA(16:0/18:1(9Z)); which is catalyzed by the enzyme phosphatidate phosphatase. Finally, DG(16:0/18:1(9Z)/0:0) and palmitoleyl-CoA can be converted into TG(16:0/18:1(9Z)/16:1(9Z)); which is mediated by the enzyme diacylglycerol O-acyltransferase. In humans, DG(16:0/18:1(9Z)/0:0) is involved in phosphatidylcholine	http://www.hmdb.ca/metabolites/HMDB0007102

	biosynthesis PC(16:0/18:1(9Z)) pathway, phosphatidylethanolamine biosynthesis pe(16:0/18:1(9Z)) pathway, and the phosphatidylinositol phosphate metabolism pathway. DG(16:0/18:1(9Z)/0:0) is also involved in several metabolic disorders, some of which include de novo triacylglycerol biosynthesis TG(16:0/18:1(9Z)/24:0) pathway, de novo triacylglycerol biosynthesis TG(16:0/18:1(9Z)/14:1(9Z)) pathway, de novo triacylglycerol biosynthesis TG(16:0/18:1(9Z)/24:1(15Z)) pathway, and de novo triacylglycerol biosynthesis TG(16:0/18:1(9Z)/20:0) pathway.	

DG(16:0/18:1(9Z)/0:0) ; HMDB07102	DG(16:0/18:1(9Z)/0:0), also known as diacylglycerol or DAG(16:0/18:1), belongs to the class of organic compounds known as 1,2-diacylglycerols. These are diacylglycerols containing a glycerol acylated at positions 1 and 2. Thus, DG(16:0/18:1(9Z)/0:0) is considered to be a diradylglycerol lipid molecule. DG(16:0/18:1(9Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. DG(16:0/18:1(9Z)/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, DG(16:0/18:1(9Z)/0:0) is primarily located in the membrane (predicted from logP). DG(16:0/18:1(9Z)/0:0) participates in a number of enzymatic reactions. In particular, DG(16:0/18:1(9Z)/0:0) can be biosynthesized from PA(16:0/18:1(9Z)) through the action of the enzyme phosphatidate phosphatase. Furthermore, DG(16:0/18:1(9Z)/0:0) and myristoleoyl-CoA can be converted into TG(16:0/18:1(9Z)/14:1(9Z)); which is catalyzed by the enzyme diacylglycerol O-acyltransferase. Furthermore, DG(16:0/18:1(9Z)/0:0) can be biosynthesized from PA(16:0/18:1(9Z)); which is mediated by the enzyme phosphatidate phosphatase. Furthermore, DG(16:0/18:1(9Z)/0:0) and palmityl-CoA can be converted into TG(16:0/18:1(9Z)/16:0) through the action of the enzyme diacylglycerol O-acyltransferase. Furthermore, DG(16:0/18:1(9Z)/0:0) can be biosynthesized from PA(16:0/18:1(9Z)); which is catalyzed by the enzyme phosphatidate phosphatase. Finally, DG(16:0/18:1(9Z)/0:0) and palmitoleyl-CoA can be converted into TG(16:0/18:1(9Z)/16:1(9Z)); which is mediated by the enzyme diacylglycerol O-acyltransferase. In humans, DG(16:0/18:1(9Z)/0:0) is involved in phosphatidylcholine	http://www.hmdb.ca/metabolites/HMDB0007102

	biosynthesis PC(16:0/18:1(9Z)) pathway, phosphatidylethanolamine biosynthesis pe(16:0/18:1(9Z)) pathway, and the phosphatidylinositol phosphate metabolism pathway. DG(16:0/18:1(9Z)/0:0) is also involved in several metabolic disorders, some of which include de novo triacylglycerol biosynthesis TG(16:0/18:1(9Z)/24:0) pathway, de novo triacylglycerol biosynthesis TG(16:0/18:1(9Z)/14:1(9Z)) pathway, de novo triacylglycerol biosynthesis TG(16:0/18:1(9Z)/24:1(15Z)) pathway, and de novo triacylglycerol biosynthesis TG(16:0/18:1(9Z)/20:0) pathway.	

DG(16:0/18:2(9Z,12Z)/0:0) ; HMDB0007103	DG(16:0/18:2(9Z,12Z)/0:0)[iso2], also known as diacylglycerol(16:0/18:2) or DAG(16:0/18:2), belongs to the class of organic compounds known as lineolic acids and derivatives. These are derivatives of lineolic acid. Lineolic acid is a polyunsaturated omega-6 18 carbon long fatty acid, with two CC double bonds at the 9- and 12-positions. Thus, DG(16:0/18:2(9Z,12Z)/0:0)[iso2] is considered to be a diradylglycerol lipid molecule. DG(16:0/18:2(9Z,12Z)/0:0)[iso2] is considered to be a practically insoluble (in water) and relatively neutral molecule. DG(16:0/18:2(9Z,12Z)/0:0)[iso2] has been found throughout all human tissues, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, DG(16:0/18:2(9Z,12Z)/0:0)[iso2] is primarily located in the membrane (predicted from logP) and cytoplasm. In humans, DG(16:0/18:2(9Z,12Z)/0:0)[iso2] is involved in phosphatidylcholine biosynthesis PC(16:0/18:2(9Z,12Z)) pathway and phosphatidylethanolamine biosynthesis pe(16:0/18:2(9Z,12Z)) pathway. DG(16:0/18:2(9Z,12Z)/0:0)[iso2] is also involved in several metabolic disorders, some of which include de novo triacylglycerol biosynthesis TG(16:0/18:2(9Z,12Z)/16:0) pathway, de novo triacylglycerol biosynthesis TG(16:0/18:2(9Z,12Z)/18:4(6Z,9Z,12Z,15Z)) pathway, de novo triacylglycerol biosynthesis TG(16:0/18:2(9Z,12Z)/14:1(9Z)) pathway, and de novo triacylglycerol biosynthesis TG(16:0/18:2(9Z,12Z)/16:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0007103

DG(16:0/18:2(9Z,12Z)/0:0) ; HMDB07103	DG(16:0/18:2(9Z,12Z)/0:0)[iso2], also known as diacylglycerol(16:0/18:2) or DAG(16:0/18:2), belongs to the class of organic compounds known as lineolic acids and derivatives. These are derivatives of lineolic acid. Lineolic acid is a polyunsaturated omega-6 18 carbon long fatty acid, with two CC double bonds at the 9- and 12-positions. Thus, DG(16:0/18:2(9Z,12Z)/0:0)[iso2] is considered to be a diradylglycerol lipid molecule. DG(16:0/18:2(9Z,12Z)/0:0)[iso2] is considered to be a practically insoluble (in water) and relatively neutral molecule. DG(16:0/18:2(9Z,12Z)/0:0)[iso2] has been found throughout all human tissues, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, DG(16:0/18:2(9Z,12Z)/0:0)[iso2] is primarily located in the membrane (predicted from logP) and cytoplasm. In humans, DG(16:0/18:2(9Z,12Z)/0:0)[iso2] is involved in phosphatidylcholine biosynthesis PC(16:0/18:2(9Z,12Z)) pathway and phosphatidylethanolamine biosynthesis pe(16:0/18:2(9Z,12Z)) pathway. DG(16:0/18:2(9Z,12Z)/0:0)[iso2] is also involved in several metabolic disorders, some of which include de novo triacylglycerol biosynthesis TG(16:0/18:2(9Z,12Z)/16:0) pathway, de novo triacylglycerol biosynthesis TG(16:0/18:2(9Z,12Z)/18:4(6Z,9Z,12Z,15Z)) pathway, de novo triacylglycerol biosynthesis TG(16:0/18:2(9Z,12Z)/14:1(9Z)) pathway, and de novo triacylglycerol biosynthesis TG(16:0/18:2(9Z,12Z)/16:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0007103

DG(16:1(9Z)/18:2(9Z,12Z)/0:0) ; HMDB0007132	DG(16:1(9Z)/18:2(9Z,12Z)/0:0)[iso2], also known as DAG(16:1N7/18:2N6) or diacylglycerol(16:1/18:2), belongs to the class of organic compounds known as lineolic acids and derivatives. These are derivatives of lineolic acid. Lineolic acid is a polyunsaturated omega-6 18 carbon long fatty acid, with two CC double bonds at the 9- and 12-positions. Thus, DG(16:1(9Z)/18:2(9Z,12Z)/0:0)[iso2] is considered to be a diradylglycerol lipid molecule. DG(16:1(9Z)/18:2(9Z,12Z)/0:0)[iso2] is considered to be a practically insoluble (in water) and relatively neutral molecule. DG(16:1(9Z)/18:2(9Z,12Z)/0:0)[iso2] has been found throughout all human tissues, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, DG(16:1(9Z)/18:2(9Z,12Z)/0:0)[iso2] is primarily located in the membrane (predicted from logP) and cytoplasm. In humans, DG(16:1(9Z)/18:2(9Z,12Z)/0:0)[iso2] is involved in phosphatidylethanolamine biosynthesis pe(16:1(9Z)/18:2(9Z,12Z)) pathway and phosphatidylcholine biosynthesis PC(16:1(9Z)/18:2(9Z,12Z)) pathway. DG(16:1(9Z)/18:2(9Z,12Z)/0:0)[iso2] is also involved in several metabolic disorders, some of which include de novo triacylglycerol biosynthesis TG(16:1(9Z)/18:2(9Z,12Z)/18:1(11Z)) pathway, de novo triacylglycerol biosynthesis TG(16:1(9Z)/18:2(9Z,12Z)/22:1(13Z)) pathway, de novo triacylglycerol biosynthesis TG(16:1(9Z)/18:2(9Z,12Z)/22:5(7Z,10Z,13Z,16Z,19Z)) pathway, and de novo triacylglycerol biosynthesis TG(16:1(9Z)/18:2(9Z,12Z)/20:3(8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0007132

DG(16:1(9Z)/18:2(9Z,12Z)/0:0) ; HMDB07132	DG(16:1(9Z)/18:2(9Z,12Z)/0:0)[iso2], also known as DAG(16:1N7/18:2N6) or diacylglycerol(16:1/18:2), belongs to the class of organic compounds known as lineolic acids and derivatives. These are derivatives of lineolic acid. Lineolic acid is a polyunsaturated omega-6 18 carbon long fatty acid, with two CC double bonds at the 9- and 12-positions. Thus, DG(16:1(9Z)/18:2(9Z,12Z)/0:0)[iso2] is considered to be a diradylglycerol lipid molecule. DG(16:1(9Z)/18:2(9Z,12Z)/0:0)[iso2] is considered to be a practically insoluble (in water) and relatively neutral molecule. DG(16:1(9Z)/18:2(9Z,12Z)/0:0)[iso2] has been found throughout all human tissues, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, DG(16:1(9Z)/18:2(9Z,12Z)/0:0)[iso2] is primarily located in the membrane (predicted from logP) and cytoplasm. In humans, DG(16:1(9Z)/18:2(9Z,12Z)/0:0)[iso2] is involved in phosphatidylethanolamine biosynthesis pe(16:1(9Z)/18:2(9Z,12Z)) pathway and phosphatidylcholine biosynthesis PC(16:1(9Z)/18:2(9Z,12Z)) pathway. DG(16:1(9Z)/18:2(9Z,12Z)/0:0)[iso2] is also involved in several metabolic disorders, some of which include de novo triacylglycerol biosynthesis TG(16:1(9Z)/18:2(9Z,12Z)/18:1(11Z)) pathway, de novo triacylglycerol biosynthesis TG(16:1(9Z)/18:2(9Z,12Z)/22:1(13Z)) pathway, de novo triacylglycerol biosynthesis TG(16:1(9Z)/18:2(9Z,12Z)/22:5(7Z,10Z,13Z,16Z,19Z)) pathway, and de novo triacylglycerol biosynthesis TG(16:1(9Z)/18:2(9Z,12Z)/20:3(8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0007132

DG(18:0/18:0/0:0) ; HMDB0007158	DG(18:0/18:0/0:0), also known as diacyl glycerol or DAG(18:0/18:0), belongs to the class of organic compounds known as 1,2-diacylglycerols. These are diacylglycerols containing a glycerol acylated at positions 1 and 2. Thus, DG(18:0/18:0/0:0) is considered to be a diradylglycerol lipid molecule. DG(18:0/18:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. DG(18:0/18:0/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, DG(18:0/18:0/0:0) is primarily located in the membrane (predicted from logP). DG(18:0/18:0/0:0) participates in a number of enzymatic reactions. In particular, DG(18:0/18:0/0:0) can be biosynthesized from PA(18:0/18:0) through its interaction with the enzyme phosphatidate phosphatase. Furthermore, DG(18:0/18:0/0:0) and myristoleoyl-CoA can be converted into TG(18:0/18:0/14:1(9Z)); which is mediated by the enzyme diacylglycerol O-acyltransferase. Furthermore, DG(18:0/18:0/0:0) can be biosynthesized from PA(18:0/18:0) through the action of the enzyme phosphatidate phosphatase. Furthermore, DG(18:0/18:0/0:0) and palmitoleyl-CoA can be converted into TG(18:0/18:0/16:1(9Z)) through its interaction with the enzyme diacylglycerol O-acyltransferase. Furthermore, DG(18:0/18:0/0:0) can be biosynthesized from PA(18:0/18:0); which is catalyzed by the enzyme phosphatidate phosphatase. Finally, DG(18:0/18:0/0:0) and stearoyl-CoA can be converted into TG(18:0/18:0/18:0); which is catalyzed by the enzyme diacylglycerol O-acyltransferase. In humans, DG(18:0/18:0/0:0) is involved in phosphatidylcholine biosynthesis PC(18:0/18:0) pathway and phosphatidylethanolamine biosynthesis pe(18:0/18:0) pathway. DG(18:0/18:0/0:0) is also involved in several metabolic disorders, some of which include	http://www.hmdb.ca/metabolites/HMDB0007158

	de novo triacylglycerol biosynthesis TG(18:0/18:0/22:1(13Z)) pathway, de novo triacylglycerol biosynthesis TG(18:0/18:0/18:1(11Z)) pathway, de novo triacylglycerol biosynthesis TG(18:0/18:0/18:0) pathway, and de novo triacylglycerol biosynthesis TG(18:0/18:0/18:2(9Z,12Z)) pathway.	

DG(18:0/18:0/0:0) ; HMDB07158	DG(18:0/18:0/0:0), also known as diacyl glycerol or DAG(18:0/18:0), belongs to the class of organic compounds known as 1,2-diacylglycerols. These are diacylglycerols containing a glycerol acylated at positions 1 and 2. Thus, DG(18:0/18:0/0:0) is considered to be a diradylglycerol lipid molecule. DG(18:0/18:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. DG(18:0/18:0/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, DG(18:0/18:0/0:0) is primarily located in the membrane (predicted from logP). DG(18:0/18:0/0:0) participates in a number of enzymatic reactions. In particular, DG(18:0/18:0/0:0) can be biosynthesized from PA(18:0/18:0) through its interaction with the enzyme phosphatidate phosphatase. Furthermore, DG(18:0/18:0/0:0) and myristoleoyl-CoA can be converted into TG(18:0/18:0/14:1(9Z)); which is mediated by the enzyme diacylglycerol O-acyltransferase. Furthermore, DG(18:0/18:0/0:0) can be biosynthesized from PA(18:0/18:0) through the action of the enzyme phosphatidate phosphatase. Furthermore, DG(18:0/18:0/0:0) and palmitoleyl-CoA can be converted into TG(18:0/18:0/16:1(9Z)) through its interaction with the enzyme diacylglycerol O-acyltransferase. Furthermore, DG(18:0/18:0/0:0) can be biosynthesized from PA(18:0/18:0); which is catalyzed by the enzyme phosphatidate phosphatase. Finally, DG(18:0/18:0/0:0) and stearoyl-CoA can be converted into TG(18:0/18:0/18:0); which is catalyzed by the enzyme diacylglycerol O-acyltransferase. In humans, DG(18:0/18:0/0:0) is involved in phosphatidylcholine biosynthesis PC(18:0/18:0) pathway and phosphatidylethanolamine biosynthesis pe(18:0/18:0) pathway. DG(18:0/18:0/0:0) is also involved in several metabolic disorders, some of which include	http://www.hmdb.ca/metabolites/HMDB0007158

	de novo triacylglycerol biosynthesis TG(18:0/18:0/22:1(13Z)) pathway, de novo triacylglycerol biosynthesis TG(18:0/18:0/18:1(11Z)) pathway, de novo triacylglycerol biosynthesis TG(18:0/18:0/18:0) pathway, and de novo triacylglycerol biosynthesis TG(18:0/18:0/18:2(9Z,12Z)) pathway.	

DG(18:0/20:4(5Z,8Z,11Z,14Z)/0:0) ; HMDB0007170	DG(18:0/20:4(5Z,8Z,11Z,14Z)/0:0)[iso2], also known as diacylglycerol(18:0/20:4) or DAG(18:0/20:4), belongs to the class of organic compounds known as 1,2-diacylglycerols. These are diacylglycerols containing a glycerol acylated at positions 1 and 2. Thus, DG(18:0/20:4(5Z,8Z,11Z,14Z)/0:0)[iso2] is considered to be a diradylglycerol lipid molecule. DG(18:0/20:4(5Z,8Z,11Z,14Z)/0:0)[iso2] is considered to be a practically insoluble (in water) and relatively neutral molecule. DG(18:0/20:4(5Z,8Z,11Z,14Z)/0:0)[iso2] has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, DG(18:0/20:4(5Z,8Z,11Z,14Z)/0:0)[iso2] is primarily located in the membrane (predicted from logP). In humans, DG(18:0/20:4(5Z,8Z,11Z,14Z)/0:0)[iso2] is involved in phosphatidylcholine biosynthesis PC(18:0/20:4(5Z,8Z,11Z,14Z)) pathway, the activation OF PKC through g protein coupled receptor pathway, and phosphatidylethanolamine biosynthesis pe(18:0/20:4(5Z,8Z,11Z,14Z)) pathway. DG(18:0/20:4(5Z,8Z,11Z,14Z)/0:0)[iso2] is also involved in several metabolic disorders, some of which include de novo triacylglycerol biosynthesis TG(18:0/20:4(5Z,8Z,11Z,14Z)/22:5(7Z,10Z,13Z,16Z,19Z)) pathway, de novo triacylglycerol biosynthesis TG(18:0/20:4(5Z,8Z,11Z,14Z)/20:3(8Z,11Z,14Z)) pathway, de novo triacylglycerol biosynthesis TG(18:0/20:4(5Z,8Z,11Z,14Z)/16:1(9Z)) pathway, and de novo triacylglycerol biosynthesis TG(18:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0007170

DG(18:0/20:4(5Z,8Z,11Z,14Z)/0:0) ; HMDB07170	DG(18:0/20:4(5Z,8Z,11Z,14Z)/0:0)[iso2], also known as diacylglycerol(18:0/20:4) or DAG(18:0/20:4), belongs to the class of organic compounds known as 1,2-diacylglycerols. These are diacylglycerols containing a glycerol acylated at positions 1 and 2. Thus, DG(18:0/20:4(5Z,8Z,11Z,14Z)/0:0)[iso2] is considered to be a diradylglycerol lipid molecule. DG(18:0/20:4(5Z,8Z,11Z,14Z)/0:0)[iso2] is considered to be a practically insoluble (in water) and relatively neutral molecule. DG(18:0/20:4(5Z,8Z,11Z,14Z)/0:0)[iso2] has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, DG(18:0/20:4(5Z,8Z,11Z,14Z)/0:0)[iso2] is primarily located in the membrane (predicted from logP). In humans, DG(18:0/20:4(5Z,8Z,11Z,14Z)/0:0)[iso2] is involved in phosphatidylcholine biosynthesis PC(18:0/20:4(5Z,8Z,11Z,14Z)) pathway, the activation OF PKC through g protein coupled receptor pathway, and phosphatidylethanolamine biosynthesis pe(18:0/20:4(5Z,8Z,11Z,14Z)) pathway. DG(18:0/20:4(5Z,8Z,11Z,14Z)/0:0)[iso2] is also involved in several metabolic disorders, some of which include de novo triacylglycerol biosynthesis TG(18:0/20:4(5Z,8Z,11Z,14Z)/22:5(7Z,10Z,13Z,16Z,19Z)) pathway, de novo triacylglycerol biosynthesis TG(18:0/20:4(5Z,8Z,11Z,14Z)/20:3(8Z,11Z,14Z)) pathway, de novo triacylglycerol biosynthesis TG(18:0/20:4(5Z,8Z,11Z,14Z)/16:1(9Z)) pathway, and de novo triacylglycerol biosynthesis TG(18:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0007170

DG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/0:0) ; HMDB0007199	DG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/0:0), also known as DG(18:1/20:4) or diacylglycerol(38:5), belongs to the class of organic compounds known as 1,2-diacylglycerols. These are diacylglycerols containing a glycerol acylated at positions 1 and 2. DG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. DG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, DG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/0:0) is primarily located in the membrane (predicted from logP). DG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/0:0) participates in a number of enzymatic reactions. In particular, DG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/0:0) can be biosynthesized from PA(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)); which is catalyzed by the enzyme phosphatidate phosphatase. Furthermore, DG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/0:0) and cis-vaccenoyl-CoA can be converted into TG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/18:1(11Z)) through the action of the enzyme diacylglycerol O-acyltransferase. Furthermore, DG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/0:0) can be biosynthesized from PA(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)); which is catalyzed by the enzyme phosphatidate phosphatase. Furthermore, DG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/0:0) and oleoyl-CoA can be converted into TG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/18:1(9Z)); which is catalyzed by the enzyme diacylglycerol O-acyltransferase. Furthermore, DG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/0:0) can be biosynthesized from PA(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)); which is mediated by the enzyme phosphatidate phosphatase. Finally, DG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/0:0) and linoleoyl-CoA can be converted into TG(18:1(11Z)/20:4(5Z,8Z,11Z,14	http://www.hmdb.ca/metabolites/HMDB0007199

	Z)/18:2(9Z,12Z)) through its interaction with the enzyme diacylglycerol O-acyltransferase. In humans, DG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/0:0) is involved in phosphatidylethanolamine biosynthesis pe(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)) pathway and phosphatidylcholine biosynthesis PC(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)) pathway. DG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/0:0) is also involved in several metabolic disorders, some of which include de novo triacylglycerol biosynthesis TG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/20:4(8Z,11Z,14Z,17Z)) pathway, de novo triacylglycerol biosynthesis TG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/18:1(9Z)) pathway, de novo triacylglycerol biosynthesis TG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) pathway, and de novo triacylglycerol biosynthesis TG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/18:3(6Z,9Z,12Z)) pathway.	

DG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/0:0) ; HMDB07199	DG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/0:0), also known as DG(18:1/20:4) or diacylglycerol(38:5), belongs to the class of organic compounds known as 1,2-diacylglycerols. These are diacylglycerols containing a glycerol acylated at positions 1 and 2. DG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. DG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, DG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/0:0) is primarily located in the membrane (predicted from logP). DG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/0:0) participates in a number of enzymatic reactions. In particular, DG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/0:0) can be biosynthesized from PA(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)); which is catalyzed by the enzyme phosphatidate phosphatase. Furthermore, DG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/0:0) and cis-vaccenoyl-CoA can be converted into TG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/18:1(11Z)) through the action of the enzyme diacylglycerol O-acyltransferase. Furthermore, DG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/0:0) can be biosynthesized from PA(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)); which is catalyzed by the enzyme phosphatidate phosphatase. Furthermore, DG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/0:0) and oleoyl-CoA can be converted into TG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/18:1(9Z)); which is catalyzed by the enzyme diacylglycerol O-acyltransferase. Furthermore, DG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/0:0) can be biosynthesized from PA(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)); which is mediated by the enzyme phosphatidate phosphatase. Finally, DG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/0:0) and linoleoyl-CoA can be converted into TG(18:1(11Z)/20:4(5Z,8Z,11Z,14	http://www.hmdb.ca/metabolites/HMDB0007199

	Z)/18:2(9Z,12Z)) through its interaction with the enzyme diacylglycerol O-acyltransferase. In humans, DG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/0:0) is involved in phosphatidylethanolamine biosynthesis pe(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)) pathway and phosphatidylcholine biosynthesis PC(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)) pathway. DG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/0:0) is also involved in several metabolic disorders, some of which include de novo triacylglycerol biosynthesis TG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/20:4(8Z,11Z,14Z,17Z)) pathway, de novo triacylglycerol biosynthesis TG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/18:1(9Z)) pathway, de novo triacylglycerol biosynthesis TG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) pathway, and de novo triacylglycerol biosynthesis TG(18:1(11Z)/20:4(5Z,8Z,11Z,14Z)/18:3(6Z,9Z,12Z)) pathway.	

DG(18:1(9Z)/18:0/0:0) ; HMDB0007216	DG(18:1(9Z)/18:0/0:0), also known as diacylglycerol or DAG(18:1/18:0), belongs to the class of organic compounds known as 1,2-diacylglycerols. These are diacylglycerols containing a glycerol acylated at positions 1 and 2. DG(18:1(9Z)/18:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. DG(18:1(9Z)/18:0/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, DG(18:1(9Z)/18:0/0:0) is primarily located in the membrane (predicted from logP). DG(18:1(9Z)/18:0/0:0) participates in a number of enzymatic reactions. In particular, DG(18:1(9Z)/18:0/0:0) can be biosynthesized from PA(18:1(9Z)/18:0); which is mediated by the enzyme phosphatidate phosphatase. Furthermore, DG(18:1(9Z)/18:0/0:0) and oleoyl-CoA can be converted into TG(18:1(9Z)/18:0/18:1(9Z)) through its interaction with the enzyme diacylglycerol O-acyltransferase. Furthermore, DG(18:1(9Z)/18:0/0:0) can be biosynthesized from PA(18:1(9Z)/18:0); which is mediated by the enzyme phosphatidate phosphatase. Furthermore, DG(18:1(9Z)/18:0/0:0) and linoleoyl-CoA can be converted into TG(18:1(9Z)/18:0/18:2(9Z,12Z)) through its interaction with the enzyme diacylglycerol O-acyltransferase. Furthermore, DG(18:1(9Z)/18:0/0:0) can be biosynthesized from PA(18:1(9Z)/18:0) through the action of the enzyme phosphatidate phosphatase. Finally, DG(18:1(9Z)/18:0/0:0) and gamma-linolenoyl-CoA can be converted into TG(18:1(9Z)/18:0/18:3(6Z,9Z,12Z)) through the action of the enzyme diacylglycerol O-acyltransferase. In humans, DG(18:1(9Z)/18:0/0:0) is involved in phosphatidylethanolamine biosynthesis pe(18:1(9Z)/18:0) pathway and phosphatidylcholine	http://www.hmdb.ca/metabolites/HMDB0007216

	biosynthesis PC(18:1(9Z)/18:0) pathway. DG(18:1(9Z)/18:0/0:0) is also involved in several metabolic disorders, some of which include de novo triacylglycerol biosynthesis TG(18:1(9Z)/18:0/22:5(7Z,10Z,13Z,16Z,19Z)) pathway, de novo triacylglycerol biosynthesis TG(18:1(9Z)/18:0/22:4(7Z,10Z,13Z,16Z)) pathway, de novo triacylglycerol biosynthesis TG(18:1(9Z)/18:0/20:3(5Z,8Z,11Z)) pathway, and de novo triacylglycerol biosynthesis TG(18:1(9Z)/18:0/18:4(6Z,9Z,12Z,15Z)) pathway.	

DG(18:1(9Z)/18:0/0:0) ; HMDB07216	DG(18:1(9Z)/18:0/0:0), also known as diacylglycerol or DAG(18:1/18:0), belongs to the class of organic compounds known as 1,2-diacylglycerols. These are diacylglycerols containing a glycerol acylated at positions 1 and 2. DG(18:1(9Z)/18:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. DG(18:1(9Z)/18:0/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, DG(18:1(9Z)/18:0/0:0) is primarily located in the membrane (predicted from logP). DG(18:1(9Z)/18:0/0:0) participates in a number of enzymatic reactions. In particular, DG(18:1(9Z)/18:0/0:0) can be biosynthesized from PA(18:1(9Z)/18:0); which is mediated by the enzyme phosphatidate phosphatase. Furthermore, DG(18:1(9Z)/18:0/0:0) and oleoyl-CoA can be converted into TG(18:1(9Z)/18:0/18:1(9Z)) through its interaction with the enzyme diacylglycerol O-acyltransferase. Furthermore, DG(18:1(9Z)/18:0/0:0) can be biosynthesized from PA(18:1(9Z)/18:0); which is mediated by the enzyme phosphatidate phosphatase. Furthermore, DG(18:1(9Z)/18:0/0:0) and linoleoyl-CoA can be converted into TG(18:1(9Z)/18:0/18:2(9Z,12Z)) through its interaction with the enzyme diacylglycerol O-acyltransferase. Furthermore, DG(18:1(9Z)/18:0/0:0) can be biosynthesized from PA(18:1(9Z)/18:0) through the action of the enzyme phosphatidate phosphatase. Finally, DG(18:1(9Z)/18:0/0:0) and gamma-linolenoyl-CoA can be converted into TG(18:1(9Z)/18:0/18:3(6Z,9Z,12Z)) through the action of the enzyme diacylglycerol O-acyltransferase. In humans, DG(18:1(9Z)/18:0/0:0) is involved in phosphatidylethanolamine biosynthesis pe(18:1(9Z)/18:0) pathway and phosphatidylcholine	http://www.hmdb.ca/metabolites/HMDB0007216

	biosynthesis PC(18:1(9Z)/18:0) pathway. DG(18:1(9Z)/18:0/0:0) is also involved in several metabolic disorders, some of which include de novo triacylglycerol biosynthesis TG(18:1(9Z)/18:0/22:5(7Z,10Z,13Z,16Z,19Z)) pathway, de novo triacylglycerol biosynthesis TG(18:1(9Z)/18:0/22:4(7Z,10Z,13Z,16Z)) pathway, de novo triacylglycerol biosynthesis TG(18:1(9Z)/18:0/20:3(5Z,8Z,11Z)) pathway, and de novo triacylglycerol biosynthesis TG(18:1(9Z)/18:0/18:4(6Z,9Z,12Z,15Z)) pathway.	

DG(18:1(9Z)/18:1(9Z)/0:0) ; HMDB0007218	DG(18:1(9Z)/18:1(9Z)/0:0), also known as sn-1,2-dioleoylglycerol or sn-1,2-diolein, belongs to the class of organic compounds known as 1,2-diacylglycerols. These are diacylglycerols containing a glycerol acylated at positions 1 and 2. Thus, DG(18:1(9Z)/18:1(9Z)/0:0) is considered to be a diradylglycerol lipid molecule. DG(18:1(9Z)/18:1(9Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. DG(18:1(9Z)/18:1(9Z)/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, DG(18:1(9Z)/18:1(9Z)/0:0) is primarily located in the membrane (predicted from logP). DG(18:1(9Z)/18:1(9Z)/0:0) participates in a number of enzymatic reactions. In particular, DG(18:1(9Z)/18:1(9Z)/0:0) can be biosynthesized from PA(18:1(9Z)/18:1(9Z)); which is mediated by the enzyme phosphatidate phosphatase. Furthermore, DG(18:1(9Z)/18:1(9Z)/0:0) and oleoyl-CoA can be converted into TG(18:1(9Z)/18:1(9Z)/18:1(9Z))[iso] through the action of the enzyme diacylglycerol O-acyltransferase. Furthermore, DG(18:1(9Z)/18:1(9Z)/0:0) can be biosynthesized from PA(18:1(9Z)/18:1(9Z)); which is mediated by the enzyme phosphatidate phosphatase. Furthermore, DG(18:1(9Z)/18:1(9Z)/0:0) and linoleoyl-CoA can be converted into TG(18:1(9Z)/18:1(9Z)/18:2(9Z,12Z))[iso3]; which is mediated by the enzyme diacylglycerol O-acyltransferase. Furthermore, DG(18:1(9Z)/18:1(9Z)/0:0) can be biosynthesized from PA(18:1(9Z)/18:1(9Z)) through the action of the enzyme phosphatidate phosphatase. Finally, DG(18:1(9Z)/18:1(9Z)/0:0) and gamma-linolenoyl-CoA can be converted into TG(18:1(9Z)/18:1(9Z)/18:3(6Z,9Z,12Z))[iso6] through its interaction with the enzyme diacylglycerol O-acyltransferase. In humans,	http://www.hmdb.ca/metabolites/HMDB0007218

	DG(18:1(9Z)/18:1(9Z)/0:0) is involved in phosphatidylcholine biosynthesis PC(18:1(9Z)/18:1(9Z)) pathway and phosphatidylethanolamine biosynthesis pe(18:1(9Z)/18:1(9Z)) pathway. DG(18:1(9Z)/18:1(9Z)/0:0) is also involved in several metabolic disorders, some of which include de novo triacylglycerol biosynthesis TG(18:1(9Z)/18:1(9Z)/20:5(5Z,8Z,11Z,14Z,17Z)) pathway, de novo triacylglycerol biosynthesis TG(18:1(9Z)/18:1(9Z)/24:1(15Z)) pathway, de novo triacylglycerol biosynthesis TG(18:1(9Z)/18:1(9Z)/18:3(6Z,9Z,12Z)) pathway, and de novo triacylglycerol biosynthesis TG(18:1(9Z)/18:1(9Z)/22:4(7Z,10Z,13Z,16Z)) pathway.	

DG(18:1(9Z)/18:1(9Z)/0:0) ; HMDB07218	DG(18:1(9Z)/18:1(9Z)/0:0), also known as sn-1,2-dioleoylglycerol or sn-1,2-diolein, belongs to the class of organic compounds known as 1,2-diacylglycerols. These are diacylglycerols containing a glycerol acylated at positions 1 and 2. Thus, DG(18:1(9Z)/18:1(9Z)/0:0) is considered to be a diradylglycerol lipid molecule. DG(18:1(9Z)/18:1(9Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. DG(18:1(9Z)/18:1(9Z)/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, DG(18:1(9Z)/18:1(9Z)/0:0) is primarily located in the membrane (predicted from logP). DG(18:1(9Z)/18:1(9Z)/0:0) participates in a number of enzymatic reactions. In particular, DG(18:1(9Z)/18:1(9Z)/0:0) can be biosynthesized from PA(18:1(9Z)/18:1(9Z)); which is mediated by the enzyme phosphatidate phosphatase. Furthermore, DG(18:1(9Z)/18:1(9Z)/0:0) and oleoyl-CoA can be converted into TG(18:1(9Z)/18:1(9Z)/18:1(9Z))[iso] through the action of the enzyme diacylglycerol O-acyltransferase. Furthermore, DG(18:1(9Z)/18:1(9Z)/0:0) can be biosynthesized from PA(18:1(9Z)/18:1(9Z)); which is mediated by the enzyme phosphatidate phosphatase. Furthermore, DG(18:1(9Z)/18:1(9Z)/0:0) and linoleoyl-CoA can be converted into TG(18:1(9Z)/18:1(9Z)/18:2(9Z,12Z))[iso3]; which is mediated by the enzyme diacylglycerol O-acyltransferase. Furthermore, DG(18:1(9Z)/18:1(9Z)/0:0) can be biosynthesized from PA(18:1(9Z)/18:1(9Z)) through the action of the enzyme phosphatidate phosphatase. Finally, DG(18:1(9Z)/18:1(9Z)/0:0) and gamma-linolenoyl-CoA can be converted into TG(18:1(9Z)/18:1(9Z)/18:3(6Z,9Z,12Z))[iso6] through its interaction with the enzyme diacylglycerol O-acyltransferase. In humans,	http://www.hmdb.ca/metabolites/HMDB0007218

	DG(18:1(9Z)/18:1(9Z)/0:0) is involved in phosphatidylcholine biosynthesis PC(18:1(9Z)/18:1(9Z)) pathway and phosphatidylethanolamine biosynthesis pe(18:1(9Z)/18:1(9Z)) pathway. DG(18:1(9Z)/18:1(9Z)/0:0) is also involved in several metabolic disorders, some of which include de novo triacylglycerol biosynthesis TG(18:1(9Z)/18:1(9Z)/20:5(5Z,8Z,11Z,14Z,17Z)) pathway, de novo triacylglycerol biosynthesis TG(18:1(9Z)/18:1(9Z)/24:1(15Z)) pathway, de novo triacylglycerol biosynthesis TG(18:1(9Z)/18:1(9Z)/18:3(6Z,9Z,12Z)) pathway, and de novo triacylglycerol biosynthesis TG(18:1(9Z)/18:1(9Z)/22:4(7Z,10Z,13Z,16Z)) pathway.	

DG(18:1(9Z)/18:2(9Z,12Z)/0:0) ; HMDB0007219	DG(18:1(9Z)/18:2(9Z,12Z)/0:0)[iso2], also known as DAG(18:1/18:2) or diacylglycerol(18:1/18:2), belongs to the class of organic compounds known as lineolic acids and derivatives. These are derivatives of lineolic acid. Lineolic acid is a polyunsaturated omega-6 18 carbon long fatty acid, with two CC double bonds at the 9- and 12-positions. Thus, DG(18:1(9Z)/18:2(9Z,12Z)/0:0)[iso2] is considered to be a diradylglycerol lipid molecule. DG(18:1(9Z)/18:2(9Z,12Z)/0:0)[iso2] is considered to be a practically insoluble (in water) and relatively neutral molecule. DG(18:1(9Z)/18:2(9Z,12Z)/0:0)[iso2] has been found throughout all human tissues, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, DG(18:1(9Z)/18:2(9Z,12Z)/0:0)[iso2] is primarily located in the membrane (predicted from logP) and cytoplasm. In humans, DG(18:1(9Z)/18:2(9Z,12Z)/0:0)[iso2] is involved in phosphatidylethanolamine biosynthesis pe(18:1(9Z)/18:2(9Z,12Z)) pathway and phosphatidylcholine biosynthesis PC(18:1(9Z)/18:2(9Z,12Z)) pathway. DG(18:1(9Z)/18:2(9Z,12Z)/0:0)[iso2] is also involved in several metabolic disorders, some of which include de novo triacylglycerol biosynthesis TG(18:1(9Z)/18:2(9Z,12Z)/22:5(7Z,10Z,13Z,16Z,19Z)) pathway, de novo triacylglycerol biosynthesis TG(18:1(9Z)/18:2(9Z,12Z)/20:2(11Z,14Z)) pathway, de novo triacylglycerol biosynthesis TG(18:1(9Z)/18:2(9Z,12Z)/22:4(7Z,10Z,13Z,16Z)) pathway, and de novo triacylglycerol biosynthesis TG(18:1(9Z)/18:2(9Z,12Z)/22:5(4Z,7Z,10Z,13Z,16Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0007219

DG(18:1(9Z)/18:2(9Z,12Z)/0:0) ; HMDB07219	DG(18:1(9Z)/18:2(9Z,12Z)/0:0)[iso2], also known as DAG(18:1/18:2) or diacylglycerol(18:1/18:2), belongs to the class of organic compounds known as lineolic acids and derivatives. These are derivatives of lineolic acid. Lineolic acid is a polyunsaturated omega-6 18 carbon long fatty acid, with two CC double bonds at the 9- and 12-positions. Thus, DG(18:1(9Z)/18:2(9Z,12Z)/0:0)[iso2] is considered to be a diradylglycerol lipid molecule. DG(18:1(9Z)/18:2(9Z,12Z)/0:0)[iso2] is considered to be a practically insoluble (in water) and relatively neutral molecule. DG(18:1(9Z)/18:2(9Z,12Z)/0:0)[iso2] has been found throughout all human tissues, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, DG(18:1(9Z)/18:2(9Z,12Z)/0:0)[iso2] is primarily located in the membrane (predicted from logP) and cytoplasm. In humans, DG(18:1(9Z)/18:2(9Z,12Z)/0:0)[iso2] is involved in phosphatidylethanolamine biosynthesis pe(18:1(9Z)/18:2(9Z,12Z)) pathway and phosphatidylcholine biosynthesis PC(18:1(9Z)/18:2(9Z,12Z)) pathway. DG(18:1(9Z)/18:2(9Z,12Z)/0:0)[iso2] is also involved in several metabolic disorders, some of which include de novo triacylglycerol biosynthesis TG(18:1(9Z)/18:2(9Z,12Z)/22:5(7Z,10Z,13Z,16Z,19Z)) pathway, de novo triacylglycerol biosynthesis TG(18:1(9Z)/18:2(9Z,12Z)/20:2(11Z,14Z)) pathway, de novo triacylglycerol biosynthesis TG(18:1(9Z)/18:2(9Z,12Z)/22:4(7Z,10Z,13Z,16Z)) pathway, and de novo triacylglycerol biosynthesis TG(18:1(9Z)/18:2(9Z,12Z)/22:5(4Z,7Z,10Z,13Z,16Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0007219

DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0) ; HMDB0007248	DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0), also known as DAG(18:2/18:2) or DAG(18:2OMEGA6/18:2OMEGA6), belongs to the class of organic compounds known as lineolic acids and derivatives. These are derivatives of lineolic acid. Lineolic acid is a polyunsaturated omega-6 18 carbon long fatty acid, with two CC double bonds at the 9- and 12-positions. Thus, DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0) is considered to be a diradylglycerol lipid molecule. DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0) is primarily located in the membrane (predicted from logP) and cytoplasm. DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0) participates in a number of enzymatic reactions. In particular, DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0) can be biosynthesized from PA(18:2(9Z,12Z)/18:2(9Z,12Z)); which is mediated by the enzyme phosphatidate phosphatase. Furthermore, DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0) and linoleoyl-CoA can be converted into TG(18:2(9Z,12Z)/18:2(9Z,12Z)/18:2(9Z,12Z)); which is catalyzed by the enzyme diacylglycerol O-acyltransferase. Furthermore, DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0) can be biosynthesized from PA(18:2(9Z,12Z)/18:2(9Z,12Z)); which is mediated by the enzyme phosphatidate phosphatase. Furthermore, DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0) and gamma-linolenoyl-CoA can be converted into TG(18:2(9Z,12Z)/18:2(9Z,12Z)/18:3(6Z,9Z,12Z))[iso3]; which is mediated by the enzyme diacylglycerol O-acyltransferase. Furthermore, DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0) can be biosynthesized from PA(18:2(9Z,12Z)/18:2(9Z,12Z)); which is mediated by the enzyme	http://www.hmdb.ca/metabolites/HMDB0007248

	phosphatidate phosphatase. Finally, DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0) and alpha-linolenoyl-CoA can be converted into TG(18:2(9Z,12Z)/18:2(9Z,12Z)/18:3(9Z,12Z,15Z))[iso3] through its interaction with the enzyme diacylglycerol O-acyltransferase. In humans, DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0) is involved in phosphatidylcholine biosynthesis PC(18:2(9Z,12Z)/18:2(9Z,12Z)) pathway and phosphatidylethanolamine biosynthesis pe(18:2(9Z,12Z)/18:2(9Z,12Z)) pathway. DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0) is also involved in several metabolic disorders, some of which include de novo triacylglycerol biosynthesis TG(18:2(9Z,12Z)/18:2(9Z,12Z)/18:3(6Z,9Z,12Z)) pathway, de novo triacylglycerol biosynthesis TG(18:2(9Z,12Z)/18:2(9Z,12Z)/20:4(8Z,11Z,14Z,17Z)) pathway, de novo triacylglycerol biosynthesis TG(18:2(9Z,12Z)/18:2(9Z,12Z)/22:2(13Z,16Z)) pathway, and de novo triacylglycerol biosynthesis TG(18:2(9Z,12Z)/18:2(9Z,12Z)/18:4(6Z,9Z,12Z,15Z)) pathway.	

DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0) ; HMDB07248	DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0), also known as DAG(18:2/18:2) or DAG(18:2OMEGA6/18:2OMEGA6), belongs to the class of organic compounds known as lineolic acids and derivatives. These are derivatives of lineolic acid. Lineolic acid is a polyunsaturated omega-6 18 carbon long fatty acid, with two CC double bonds at the 9- and 12-positions. Thus, DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0) is considered to be a diradylglycerol lipid molecule. DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0) is primarily located in the membrane (predicted from logP) and cytoplasm. DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0) participates in a number of enzymatic reactions. In particular, DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0) can be biosynthesized from PA(18:2(9Z,12Z)/18:2(9Z,12Z)); which is mediated by the enzyme phosphatidate phosphatase. Furthermore, DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0) and linoleoyl-CoA can be converted into TG(18:2(9Z,12Z)/18:2(9Z,12Z)/18:2(9Z,12Z)); which is catalyzed by the enzyme diacylglycerol O-acyltransferase. Furthermore, DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0) can be biosynthesized from PA(18:2(9Z,12Z)/18:2(9Z,12Z)); which is mediated by the enzyme phosphatidate phosphatase. Furthermore, DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0) and gamma-linolenoyl-CoA can be converted into TG(18:2(9Z,12Z)/18:2(9Z,12Z)/18:3(6Z,9Z,12Z))[iso3]; which is mediated by the enzyme diacylglycerol O-acyltransferase. Furthermore, DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0) can be biosynthesized from PA(18:2(9Z,12Z)/18:2(9Z,12Z)); which is mediated by the enzyme	http://www.hmdb.ca/metabolites/HMDB0007248

	phosphatidate phosphatase. Finally, DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0) and alpha-linolenoyl-CoA can be converted into TG(18:2(9Z,12Z)/18:2(9Z,12Z)/18:3(9Z,12Z,15Z))[iso3] through its interaction with the enzyme diacylglycerol O-acyltransferase. In humans, DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0) is involved in phosphatidylcholine biosynthesis PC(18:2(9Z,12Z)/18:2(9Z,12Z)) pathway and phosphatidylethanolamine biosynthesis pe(18:2(9Z,12Z)/18:2(9Z,12Z)) pathway. DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0) is also involved in several metabolic disorders, some of which include de novo triacylglycerol biosynthesis TG(18:2(9Z,12Z)/18:2(9Z,12Z)/18:3(6Z,9Z,12Z)) pathway, de novo triacylglycerol biosynthesis TG(18:2(9Z,12Z)/18:2(9Z,12Z)/20:4(8Z,11Z,14Z,17Z)) pathway, de novo triacylglycerol biosynthesis TG(18:2(9Z,12Z)/18:2(9Z,12Z)/22:2(13Z,16Z)) pathway, and de novo triacylglycerol biosynthesis TG(18:2(9Z,12Z)/18:2(9Z,12Z)/18:4(6Z,9Z,12Z,15Z)) pathway.	
Dihomolinoleic acid ; HMDB0061864	, also known as 20:2n6 or dihomolinoleate, belongs to the class of organic compounds known as lineolic acids and derivatives. These are derivatives of lineolic acid. Lineolic acid is a polyunsaturated omega-6 18 carbon long fatty acid, with two CC double bonds at the 9- and 12-positions. Thus, is considered to be a fatty acid lipid molecule. is considered to be a practically insoluble (in water) and relatively neutral molecule. has been detected in multiple biofluids, such as saliva, blood, and urine. Within the cell, is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. can be converted into 1-octadecanoyl-2-[(10Z,12Z)-octadecadienoyl]-sn-glycero-3-phosphocholine.	http://www.hmdb.ca/metabolites/HMDB0061864

Dihydrothymine ; HMDB0000079	Dihydrothymine belongs to the class of organic compounds known as hydropyrimidines. Hydropyrimidines are compounds containing a hydrogenated pyrimidine ring (i.e. containing less than the maximum number of double bonds.). Dihydrothymine is soluble (in water) and a very weakly acidic compound (based on its pKa). Dihydrothymine has been found in human prostate tissue, and has also been primarily detected in saliva, urine, blood, and cerebrospinal fluid. Within the cell, dihydrothymine is primarily located in the cytoplasm. Dihydrothymine participates in a number of enzymatic reactions. In particular, Dihydrothymine can be biosynthesized from thymine through the action of the enzyme dihydropyrimidine dehydrogenase [nadp(+)]. In addition, Dihydrothymine can be converted into ureidoisobutyric acid through the action of the enzyme dihydropyrimidinase. In humans, dihydrothymine is involved in the pyrimidine metabolism pathway. Dihydrothymine is also involved in several metabolic disorders, some of which include UMP synthase deficiency (orotic aciduria), dihydropyrimidinase deficiency, Beta ureidopropionase deficiency, and the mngie (mitochondrial neurogastrointestinal encephalopathy) pathway. Outside of the human body, dihydrothymine can be found in a number of food items such as broad bean, millet, tronchuda cabbage, and alaska wild rhubarb. This makes dihydrothymine a potential biomarker for the consumption of these food products. Dihydrothymine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000079

Dihydrouracil ; HMDB0000076	Dihydrouracil belongs to the class of organic compounds known as pyrimidones. Pyrimidones are compounds that contain a pyrimidine ring, which bears a ketone. Pyrimidine is a 6-membered ring consisting of four carbon atoms and two nitrogen centers at the 1- and 3- ring positions. Dihydrouracil exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Dihydrouracil has been found in human prostate, liver and kidney tissues, and has also been primarily detected in saliva, urine, blood, and cerebrospinal fluid. Within the cell, dihydrouracil is primarily located in the cytoplasm and nucleus. Dihydrouracil participates in a number of enzymatic reactions. In particular, Dihydrouracil can be biosynthesized from uracil; which is mediated by the enzyme dihydropyrimidine dehydrogenase [nadp(+)]. Furthermore, Dihydrouracil can be converted into ureidopropionic acid; which is catalyzed by the enzyme dihydropyrimidinase. Furthermore, Dihydrouracil can be converted into ureidopropionic acid through its interaction with the enzyme dihydropyrimidinase. Finally, Dihydrouracil can be converted into uracil through its interaction with the enzyme dihydropyrimidine dehydrogenase [nadp(+)]. In humans, dihydrouracil is involved in the pyrimidine metabolism pathway and the Beta-alanine metabolism pathway. Dihydrouracil is also involved in several metabolic disorders, some of which include the mngie (mitochondrial neurogastrointestinal encephalopathy) pathway, ureidopropionase deficiency, gaba-transaminase deficiency, and Beta ureidopropionase deficiency. Outside of the human body, dihydrouracil can be found in a number of food items such as roman camomile, hyssop, tree fern, and brussel sprouts. This makes dihydrouracil a potential biomarker for the consumption of these food products. Dihydrouracil is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000076

Dimethylglycine ; HMDB0000092	Dimethylglycine, also known as N-methylsarcosine, belongs to the class of organic compounds known as alpha amino acids. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon). Dimethylglycine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Dimethylglycine has been found in human liver and kidney tissues, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, dimethylglycine is primarily located in the cytoplasm and mitochondria. Dimethylglycine participates in a number of enzymatic reactions. In particular, Dimethylglycine can be converted into formaldehyde and sarcosine; which is mediated by the enzyme dimethylglycine dehydrogenase, mitochondrial. Furthermore, Dimethylglycine and L-methionine can be biosynthesized from betaine and homocysteine through the action of the enzyme betaine--homocysteine S-methyltransferase 1. Furthermore, Dimethylglycine and L-methionine can be biosynthesized from betaine and homocysteine through its interaction with the enzyme betaine--homocysteine S-methyltransferase 1. Finally, Dimethylglycine and L-methionine can be biosynthesized from betaine and homocysteine; which is mediated by the enzyme betaine--homocysteine S-methyltransferase 1. In humans, dimethylglycine is involved in the glycine and serine metabolism pathway, the betaine metabolism pathway, the sarcosine oncometabolite pathway, and the methionine metabolism pathway. Dimethylglycine is also involved in several metabolic disorders, some of which include S-adenosylhomocysteine (sah) hydrolase deficiency, cystathionine Beta-synthase deficiency, the homocystinuria-megaloblastic anemia due to defect in cobalamin metabolism, CBLG complementation type pathway, and the hypermethioninemia pathway.	http://www.hmdb.ca/metabolites/HMDB0000092

Dimethylglycine ; HMDB00092	Dimethylglycine, also known as N-methylsarcosine, belongs to the class of organic compounds known as alpha amino acids. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon). Dimethylglycine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Dimethylglycine has been found in human liver and kidney tissues, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, dimethylglycine is primarily located in the cytoplasm and mitochondria. Dimethylglycine participates in a number of enzymatic reactions. In particular, Dimethylglycine can be converted into formaldehyde and sarcosine; which is mediated by the enzyme dimethylglycine dehydrogenase, mitochondrial. Furthermore, Dimethylglycine and L-methionine can be biosynthesized from betaine and homocysteine through the action of the enzyme betaine--homocysteine S-methyltransferase 1. Furthermore, Dimethylglycine and L-methionine can be biosynthesized from betaine and homocysteine through its interaction with the enzyme betaine--homocysteine S-methyltransferase 1. Finally, Dimethylglycine and L-methionine can be biosynthesized from betaine and homocysteine; which is mediated by the enzyme betaine--homocysteine S-methyltransferase 1. In humans, dimethylglycine is involved in the glycine and serine metabolism pathway, the betaine metabolism pathway, the sarcosine oncometabolite pathway, and the methionine metabolism pathway. Dimethylglycine is also involved in several metabolic disorders, some of which include S-adenosylhomocysteine (sah) hydrolase deficiency, cystathionine Beta-synthase deficiency, the homocystinuria-megaloblastic anemia due to defect in cobalamin metabolism, CBLG complementation type pathway, and the hypermethioninemia pathway.	http://www.hmdb.ca/metabolites/HMDB0000092

Dimethylguanidino valeric acid ; HMDB0240212	Dimethylguanidino valeric acid or DMGV is a product formed from the transamination of asymmetric dimethylarginine (ADMA) via the enzyme alanine-glyoxylate aminotransferase 2 (AGXT2). This pathway is involved in nitric oxide regulation. DMGV has been detected in both blood and urine (PMID: 21945966). More recently DMGV has been identified as an independent plasma biomarker of nonalcoholic fatty liver disease (NAFLD). Furthermore, plasma DMGV levels are correlated with biopsy-proven nonalcoholic steatohepatitis (NASH). Plasma DMGV levels have also been found to decline in parallel with improvements in post-procedure cardiometabolic parameters. Plasma DMGV levels have been shown to be able to predict the development of type 2 diabetes up to 12 years before disease onset (PMID: 29083323). Baseline plasma levels of DMGV have been shown to be positively associated with body fat percentage, abdominal visceral fat, very low-density lipoprotein cholesterol (VLDL), and triglycerides. Plasma levels of DMGV are inversely associated with insulin sensitivity, low-density lipoprotein cholesterol, high-density lipoprotein size, and high-density lipoprotein cholesterol (HDL). Overall, DMGV is associated with partial resistance to metabolic health benefits of regular exercise (PMID: 31166569).	http://www.hmdb.ca/metabolites/HMDB0240212
DL-2-Aminooctanoic acid ; HMDB0000991	DL-2-Amino-octanoic acid, also known as a-aminocaprylate or alpha-aminocaprylic acid, belongs to the class of organic compounds known as alpha amino acids. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon). DL-2-Amino-octanoic acid exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). DL-2-Amino-octanoic acid has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, DL-2-amino-octanoic acid is primarily located in the cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000991

DL-2-Aminooctanoic acid ; HMDB00991	DL-2-Amino-octanoic acid, also known as a-aminocaprylate or alpha-aminocaprylic acid, belongs to the class of organic compounds known as alpha amino acids. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon). DL-2-Amino-octanoic acid exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). DL-2-Amino-octanoic acid has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, DL-2-amino-octanoic acid is primarily located in the cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000991
Docosadienoate (22:2n6) ; HMDB0061714	Docosadienoate (22:2n6), also known as 13,16-docosadienoic acid, belongs to the class of organic compounds known as very long-chain fatty acids. These are fatty acids with an aliphatic tail that contains at least 22 carbon atoms. Docosadienoate (22:2n6) is considered to be a practically insoluble (in water) and relatively neutral molecule. Docosadienoate (22:2n6) has been detected in multiple biofluids, such as feces, blood, and urine. Within the cell, docosadienoate (22:2n6) is primarily located in the membrane (predicted from logP), cytoplasm and adiposome.	http://www.hmdb.ca/metabolites/HMDB0061714

Docosahexaenoic acid ; HMDB0002183	Dha, also known as doconexent or docosahexaenoate, belongs to the class of organic compounds known as very long-chain fatty acids. These are fatty acids with an aliphatic tail that contains at least 22 carbon atoms. Thus, Dha is considered to be a fatty acid lipid molecule. Dha is a drug which is used as a high-docosahexaenoic acid (dha) oral supplement. . Dha is considered to be a practically insoluble (in water) and relatively neutral molecule. Dha has been found throughout most human tissues, and has also been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, Dha is primarily located in the cytoplasm, membrane (predicted from logP), myelin sheath and adiposome. In humans, Dha is involved in the Alpha linolenic Acid and linoleic Acid metabolism pathway. Dha has been found to be associated with several diseases known as hypertension, thyroid cancer, stroke, and essential hypertension; dha has also been linked to the inborn metabolic disorders including isovaleric acidemia.	http://www.hmdb.ca/metabolites/HMDB0002183

Docosahexaenoic acid ; HMDB02183	Dha, also known as doconexent or docosahexaenoate, belongs to the class of organic compounds known as very long-chain fatty acids. These are fatty acids with an aliphatic tail that contains at least 22 carbon atoms. Thus, Dha is considered to be a fatty acid lipid molecule. Dha is a drug which is used as a high-docosahexaenoic acid (dha) oral supplement. . Dha is considered to be a practically insoluble (in water) and relatively neutral molecule. Dha has been found throughout most human tissues, and has also been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, Dha is primarily located in the cytoplasm, membrane (predicted from logP), myelin sheath and adiposome. In humans, Dha is involved in the Alpha linolenic Acid and linoleic Acid metabolism pathway. Dha has been found to be associated with several diseases known as hypertension, thyroid cancer, stroke, and essential hypertension; dha has also been linked to the inborn metabolic disorders including isovaleric acidemia.	http://www.hmdb.ca/metabolites/HMDB0002183
Docosapentaenoic acid (22n-6) ; HMDB0001976	22:5(4Z,7Z,10Z,13Z,16Z), also known as docosapentaenoate (22N-6) or C22:5N-6,9,12,15,18, belongs to the class of organic compounds known as very long-chain fatty acids. These are fatty acids with an aliphatic tail that contains at least 22 carbon atoms. Thus, 22:5(4Z,7Z,10Z,13Z,16Z) is considered to be a docosanoid lipid molecule. 22:5(4Z,7Z,10Z,13Z,16Z) is considered to be a practically insoluble (in water) and relatively neutral molecule. 22:5(4Z,7Z,10Z,13Z,16Z) has been found in human adipose tissue tissue, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, 22:5(4Z,7Z,10Z,13Z,16Z) is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. In humans, 22:5(4Z,7Z,10Z,13Z,16Z) is involved in the Alpha linolenic Acid and linoleic Acid metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0001976

Docosapentaenoic acid (22n-6) ; HMDB01976	22:5(4Z,7Z,10Z,13Z,16Z), also known as docosapentaenoate (22N-6) or C22:5N-6,9,12,15,18, belongs to the class of organic compounds known as very long-chain fatty acids. These are fatty acids with an aliphatic tail that contains at least 22 carbon atoms. Thus, 22:5(4Z,7Z,10Z,13Z,16Z) is considered to be a docosanoid lipid molecule. 22:5(4Z,7Z,10Z,13Z,16Z) is considered to be a practically insoluble (in water) and relatively neutral molecule. 22:5(4Z,7Z,10Z,13Z,16Z) has been found in human adipose tissue tissue, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, 22:5(4Z,7Z,10Z,13Z,16Z) is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. In humans, 22:5(4Z,7Z,10Z,13Z,16Z) is involved in the Alpha linolenic Acid and linoleic Acid metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0001976
Dodecanedioic acid ; HMDB0000623	Dodecanedioic acid, also known as 1,12-dodecanedioate or 1,10-dicarboxydecane, belongs to the class of organic compounds known as medium-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 4 and 12 carbon atoms. Dodecanedioic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Dodecanedioic acid has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, dodecanedioic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. Dodecanedioic acid is also a parent compound for other transformation products, including but not limited to, dodecane, 1,12-di-L-ascorbyl dodecanedioate, and O-dodecanedioylcarnitine.	http://www.hmdb.ca/metabolites/HMDB0000623

Dodecanedioic acid ; HMDB00623	Dodecanedioic acid, also known as 1,12-dodecanedioate or 1,10-dicarboxydecane, belongs to the class of organic compounds known as medium-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 4 and 12 carbon atoms. Dodecanedioic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Dodecanedioic acid has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, dodecanedioic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. Dodecanedioic acid is also a parent compound for other transformation products, including but not limited to, dodecane, 1,12-di-L-ascorbyl dodecanedioate, and O-dodecanedioylcarnitine.	http://www.hmdb.ca/metabolites/HMDB0000623

Dodecanoic acid ; HMDB0000638	Lauric acid, also known as dodecanoate or dodecanoic acid, belongs to the class of organic compounds known as medium-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 4 and 12 carbon atoms. Lauric acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Lauric acid has been found throughout most human tissues, and has also been detected in most biofluids, including feces, cerebrospinal fluid, blood, and sweat. Within the cell, lauric acid is primarily located in the cytoplasm, membrane (predicted from logP) and adiposome. Lauric acid exists in all eukaryotes, ranging from yeast to humans. In humans, lauric acid is involved in the Beta oxidation OF very long chain fatty acids pathway, fatty acid biosynthesis pathway, and the adrenoleukodystrophy, X-linked pathway. Lauric acid is also involved in a couple of metabolic disorders, which include the mitochondrial Beta-oxidation OF medium chain saturated fatty acids pathway and carnitine-acylcarnitine translocase deficiency. Outside of the human body, lauric acid can be found in a number of food items such as ginkgo nuts, chinese bayberry, chanterelle, and garden cress. This makes lauric acid a potential biomarker for the consumption of these food products. Lauric acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000638

Dodecanoic acid ; HMDB00638	Lauric acid, also known as dodecanoate or dodecanoic acid, belongs to the class of organic compounds known as medium-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 4 and 12 carbon atoms. Lauric acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Lauric acid has been found throughout most human tissues, and has also been detected in most biofluids, including feces, cerebrospinal fluid, blood, and sweat. Within the cell, lauric acid is primarily located in the cytoplasm, membrane (predicted from logP) and adiposome. Lauric acid exists in all eukaryotes, ranging from yeast to humans. In humans, lauric acid is involved in the Beta oxidation OF very long chain fatty acids pathway, fatty acid biosynthesis pathway, and the adrenoleukodystrophy, X-linked pathway. Lauric acid is also involved in a couple of metabolic disorders, which include the mitochondrial Beta-oxidation OF medium chain saturated fatty acids pathway and carnitine-acylcarnitine translocase deficiency. Outside of the human body, lauric acid can be found in a number of food items such as ginkgo nuts, chinese bayberry, chanterelle, and garden cress. This makes lauric acid a potential biomarker for the consumption of these food products. Lauric acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000638

Dodecanoylcarnitine ; HMDB0002250	Dodecanoylcarnitine, also known as lauroylcarnitine or O-C12:0-L-carnitine, belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, dodecanoylcarnitine is considered to be a fatty ester lipid molecule. Dodecanoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. Dodecanoylcarnitine has been found in human liver tissue, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, dodecanoylcarnitine is primarily located in the membrane (predicted from logP) and cytoplasm. Dodecanoylcarnitine exists in all eukaryotes, ranging from yeast to humans. Dodecanoylcarnitine has been linked to the inborn metabolic disorders including celiac disease.	http://www.hmdb.ca/metabolites/HMDB0002250
Dodecanoylcarnitine ; HMDB02250	Dodecanoylcarnitine, also known as lauroylcarnitine or O-C12:0-L-carnitine, belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, dodecanoylcarnitine is considered to be a fatty ester lipid molecule. Dodecanoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. Dodecanoylcarnitine has been found in human liver tissue, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, dodecanoylcarnitine is primarily located in the membrane (predicted from logP) and cytoplasm. Dodecanoylcarnitine exists in all eukaryotes, ranging from yeast to humans. Dodecanoylcarnitine has been linked to the inborn metabolic disorders including celiac disease.	http://www.hmdb.ca/metabolites/HMDB0002250

Dopamine 3-O-sulfate ; HMDB0006275	Dopamine 3-O-sulfate, also known as dopamine 3-monosulphate, belongs to the class of organic compounds known as phenylsulfates. Phenylsulfates are compounds containing a sulfuric acid group conjugated to a phenyl group. Dopamine 3-O-sulfate exists as a solid, slightly soluble (in water), and an extremely strong acidic compound (based on its pKa). Dopamine 3-O-sulfate has been found in human liver and kidney tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, dopamine 3-O-sulfate is primarily located in the cytoplasm. Dopamine 3-O-sulfate can be converted into dopamine.	http://www.hmdb.ca/metabolites/HMDB0006275
Dopamine 4-sulfate ; HMDB0004148	Dopamine 4-sulfate belongs to the class of organic compounds known as phenylsulfates. Phenylsulfates are compounds containing a sulfuric acid group conjugated to a phenyl group. Dopamine 4-sulfate exists as a solid, slightly soluble (in water), and an extremely strong acidic compound (based on its pKa). Dopamine 4-sulfate has been found in human liver and kidney tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, dopamine 4-sulfate is primarily located in the cytoplasm. Dopamine 4-sulfate can be converted into dopamine.	http://www.hmdb.ca/metabolites/HMDB0004148
Ectoine ; HMDB0240650	Ectoine belongs to the class of organic compounds known as alpha-amino acids. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon). Ectoine has been identified in urine (PMID: 22409530).	http://www.hmdb.ca/metabolites/HMDB0240650

Eicosadienoic acid ; HMDB0005060	Dihomolinoleic acid, also known as 11,14-eicosadienoate or eicosadienoic acid, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Dihomolinoleic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Dihomolinoleic acid has been detected in multiple biofluids, such as feces, blood, and urine. Within the cell, dihomolinoleic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. Dihomolinoleic acid participates in a number of enzymatic reactions. In particular, dihomolinoleic acid can be biosynthesized from arachidic acid. Dihomolinoleic acid is also a parent compound for other transformation products, including but not limited to, 1-octadecyl-2-[(11Z,14Z)-eicosadienoyl]-sn-glycero-3-phosphocholine, (11Z,14Z)-icosadienoyl-containing glycerolipid, and 1-palmitoyl-2-(11Z,14Z-eicosadienoyl)-sn-glycero-3-phosphocholine.	http://www.hmdb.ca/metabolites/HMDB0005060

Eicosadienoic acid ; HMDB05060	Dihomolinoleic acid, also known as 11,14-eicosadienoate or eicosadienoic acid, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Dihomolinoleic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Dihomolinoleic acid has been detected in multiple biofluids, such as feces, blood, and urine. Within the cell, dihomolinoleic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. Dihomolinoleic acid participates in a number of enzymatic reactions. In particular, dihomolinoleic acid can be biosynthesized from arachidic acid. Dihomolinoleic acid is also a parent compound for other transformation products, including but not limited to, 1-octadecyl-2-[(11Z,14Z)-eicosadienoyl]-sn-glycero-3-phosphocholine, (11Z,14Z)-icosadienoyl-containing glycerolipid, and 1-palmitoyl-2-(11Z,14Z-eicosadienoyl)-sn-glycero-3-phosphocholine.	http://www.hmdb.ca/metabolites/HMDB0005060
Eicosapentaenoic acid ; HMDB0001999	Epa, also known as icosapent or timnodonic acid, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Thus, Epa is considered to be a fatty acid lipid molecule. Epa is considered to be a practically insoluble (in water) and relatively neutral molecule. Epa has been found throughout most human tissues, and has also been primarily detected in feces, urine, blood, and sweat. Within the cell, Epa is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. In humans, Epa is involved in the Alpha linolenic Acid and linoleic Acid metabolism pathway. Outside of the human body, Epa can be found in a number of food items such as other bread, poppy, pot marjoram, and broad bean. This makes Epa a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0001999

Eicosapentaenoic acid ; HMDB01999	Epa, also known as icosapent or timnodonic acid, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Thus, Epa is considered to be a fatty acid lipid molecule. Epa is considered to be a practically insoluble (in water) and relatively neutral molecule. Epa has been found throughout most human tissues, and has also been primarily detected in feces, urine, blood, and sweat. Within the cell, Epa is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. In humans, Epa is involved in the Alpha linolenic Acid and linoleic Acid metabolism pathway. Outside of the human body, Epa can be found in a number of food items such as other bread, poppy, pot marjoram, and broad bean. This makes Epa a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0001999
Ergothioneine ; HMDB0003045	Ergothioneine, also known as sympectothion, belongs to the class of organic compounds known as histidine and derivatives. Histidine and derivatives are compounds containing cysteine or a derivative thereof resulting from reaction of cysteine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. Ergothioneine is considered to be a practically insoluble (in water) and relatively neutral molecule. Ergothioneine has been primarily detected in blood. Ergothioneine can be converted into 2-sulfenohercynine and S-methyl-L-ergothioneine.	http://www.hmdb.ca/metabolites/HMDB0003045

Erucic acid ; HMDB0002068	cis-Erucic acid, also known as cis-eruate or 22:1omega9, belongs to the class of organic compounds known as very long-chain fatty acids. These are fatty acids with an aliphatic tail that contains at least 22 carbon atoms. cis-Erucic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. cis-Erucic acid has been found in human endocrine gland tissue, and has also been detected in multiple biofluids, such as feces, blood, and urine. Within the cell, cis-erucic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. cis-Erucic acid is also a parent compound for other transformation products, including but not limited to, ethyl (13Z)-docosenoate, N-[(13Z)-docosenoyl]-tetradecasphing-4-enine-1-phosphoethanolamine, and N-[(13Z)-docosenoyl]sphing-4-enine-1-phosphocholine. cis-Erucic acid has been found to be associated with the diseases known as adrenomyeloneuropathy; cis-erucic acid has also been linked to the inborn metabolic disorders including isovaleric acidemia.	http://www.hmdb.ca/metabolites/HMDB0002068

Erucic acid ; HMDB02068	cis-Erucic acid, also known as cis-eruate or 22:1omega9, belongs to the class of organic compounds known as very long-chain fatty acids. These are fatty acids with an aliphatic tail that contains at least 22 carbon atoms. cis-Erucic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. cis-Erucic acid has been found in human endocrine gland tissue, and has also been detected in multiple biofluids, such as feces, blood, and urine. Within the cell, cis-erucic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. cis-Erucic acid is also a parent compound for other transformation products, including but not limited to, ethyl (13Z)-docosenoate, N-[(13Z)-docosenoyl]-tetradecasphing-4-enine-1-phosphoethanolamine, and N-[(13Z)-docosenoyl]sphing-4-enine-1-phosphocholine. cis-Erucic acid has been found to be associated with the diseases known as adrenomyeloneuropathy; cis-erucic acid has also been linked to the inborn metabolic disorders including isovaleric acidemia.	http://www.hmdb.ca/metabolites/HMDB0002068
Erythritol ; HMDB0002994	D-Threitol, also known as D-threo-tetritol, belongs to the class of organic compounds known as sugar alcohols. These are hydrogenated forms of carbohydrate in which the carbonyl group (aldehyde or ketone, reducing sugar) has been reduced to a primary or secondary hydroxyl group. D-Threitol is very soluble (in water) and a very weakly acidic compound (based on its pKa). D-Threitol has been primarily detected in feces, urine, blood, and cerebrospinal fluid. D-Threitol has been linked to the inborn metabolic disorders including ribose-5-phosphate isomerase deficiency.	http://www.hmdb.ca/metabolites/HMDB0002994

Erythronic acid ; HMDB0000613	Erythronic acid, also known as erythronate, belongs to the class of organic compounds known as sugar acids and derivatives. Sugar acids and derivatives are compounds containing a saccharide unit which bears a carboxylic acid group. Erythronic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Erythronic acid has been detected in most biofluids, including urine, saliva, cerebrospinal fluid, and blood. Within the cell, erythronic acid is primarily located in the cytoplasm. Erythronic acid can be converted into 4-phospho-D-erythronic acid and 3-phospho-D-erythronic acid.	http://www.hmdb.ca/metabolites/HMDB0000613
Erythronic acid ; HMDB00613	Erythronic acid, also known as erythronate, belongs to the class of organic compounds known as sugar acids and derivatives. Sugar acids and derivatives are compounds containing a saccharide unit which bears a carboxylic acid group. Erythronic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Erythronic acid has been detected in most biofluids, including urine, saliva, cerebrospinal fluid, and blood. Within the cell, erythronic acid is primarily located in the cytoplasm. Erythronic acid can be converted into 4-phospho-D-erythronic acid and 3-phospho-D-erythronic acid.	http://www.hmdb.ca/metabolites/HMDB0000613

Estriol-3-glucuronide ; HMDB0010335	Estriol-3-glucuronide, also known as estriol 3-glucosiduronate, belongs to the class of organic compounds known as steroid glucuronide conjugates. These are sterol lipids containing a glucuronide moiety linked to the steroid skeleton. Thus, estriol-3-glucuronide is considered to be a steroid conjugate lipid molecule. Estriol-3-glucuronide is considered to be a practically insoluble (in water) and relatively neutral molecule. Estriol-3-glucuronide has been found in human hepatic tissue, liver and kidney tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, estriol-3-glucuronide is primarily located in the cytoplasm and membrane (predicted from logP).	http://www.hmdb.ca/metabolites/HMDB0010335
Ethylmalonic acid ; HMDB0000622	Ethylmalonic acid, also known as ethylmalonate or a-carboxybutyrate, belongs to the class of organic compounds known as branched fatty acids. These are fatty acids containing a branched chain. Ethylmalonic acid exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Ethylmalonic acid has been found in human skeletal muscle and prostate tissues, and has also been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid. Within the cell, ethylmalonic acid is primarily located in the cytoplasm and adiposome. Ethylmalonic acid participates in a number of enzymatic reactions. In particular, ethylmalonic acid can be biosynthesized from malonic acid. Ethylmalonic acid can also be converted into (S)-ethylmalonyl-CoA and (R)-ethylmalonyl-CoA. Ethylmalonic acid is a potentially toxic compound. Ethylmalonic acid has been found to be associated with several diseases known as isobutyryl-CoA dehydrogenase deficiency, 3-hydroxy-3-methylglutaryl-CoA synthase deficiency, and anorexia nervosa; ethylmalonic acid has also been linked to several inborn metabolic disorders including ethylmalonic encephalopathy and short chain acyl-CoA dehydrogenase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000622

Etiocholanolone glucuronide ; HMDB0004484	Etiocholan-3alpha-ol-17-one 3-glucuronide, also known as 3a-hydroxyetiocholan-17-one 3-glucosiduronate or androsterone glucosiduronate, belongs to the class of organic compounds known as steroid glucuronide conjugates. These are sterol lipids containing a glucuronide moiety linked to the steroid skeleton. Thus, etiocholan-3alpha-ol-17-one 3-glucuronide is considered to be a steroid conjugate lipid molecule. Etiocholan-3alpha-ol-17-one 3-glucuronide is considered to be a practically insoluble (in water) and relatively neutral molecule. Etiocholan-3alpha-ol-17-one 3-glucuronide has been found in human hepatic tissue, liver and kidney tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, etiocholan-3alpha-ol-17-one 3-glucuronide is primarily located in the cytoplasm, membrane (predicted from logP) and endoplasmic reticulum. In humans, etiocholan-3alpha-ol-17-one 3-glucuronide is involved in the androstenedione metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0004484

Folic acid ; HMDB0000121	Folic acid, also known as folate or vitamin m, belongs to the class of organic compounds known as glutamic acid and derivatives. Glutamic acid and derivatives are compounds containing glutamic acid or a derivative thereof resulting from reaction of glutamic acid at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. Folic acid is a drug which is used for treatment of folic acid deficiency, megaloblastic anemia and in anemias of nutritional supplements, pregnancy, infancy, or childhood. Folic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Folic acid has been found in human brain, kidney and liver tissues, and has also been primarily detected in feces, urine, blood, and cerebrospinal fluid. Folic acid exists in all eukaryotes, ranging from yeast to humans. Folic acid participates in a number of enzymatic reactions. In particular, Folic acid can be biosynthesized from dihydrofolic acid; which is catalyzed by the enzyme dihydrofolate reductase. In addition, Folic acid can be converted into folic acid; which is mediated by the enzyme proton-coupled folate transporter. In humans, folic acid is involved in pterine biosynthesis pathway, the folate malabsorption, hereditary pathway, the folate metabolism pathway, and the methotrexate action pathway. Folic acid is also involved in the metabolic disorder called methylenetetrahydrofolate reductase deficiency (MTHFRD). Folic acid is a potentially toxic compound. Folic acid has been found to be associated with several diseases known as alzheimer's disease, hereditary folate malabsorption, dimethylglycine dehydrogenase deficiency, and rheumatoid arthritis; folic acid has also been linked to the inborn metabolic disorders including folate deficiency.	http://www.hmdb.ca/metabolites/HMDB0000121

Folic acid ; HMDB00121	Folic acid, also known as folate or vitamin m, belongs to the class of organic compounds known as glutamic acid and derivatives. Glutamic acid and derivatives are compounds containing glutamic acid or a derivative thereof resulting from reaction of glutamic acid at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. Folic acid is a drug which is used for treatment of folic acid deficiency, megaloblastic anemia and in anemias of nutritional supplements, pregnancy, infancy, or childhood. Folic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Folic acid has been found in human brain, kidney and liver tissues, and has also been primarily detected in feces, urine, blood, and cerebrospinal fluid. Folic acid exists in all eukaryotes, ranging from yeast to humans. Folic acid participates in a number of enzymatic reactions. In particular, Folic acid can be biosynthesized from dihydrofolic acid; which is catalyzed by the enzyme dihydrofolate reductase. In addition, Folic acid can be converted into folic acid; which is mediated by the enzyme proton-coupled folate transporter. In humans, folic acid is involved in pterine biosynthesis pathway, the folate malabsorption, hereditary pathway, the folate metabolism pathway, and the methotrexate action pathway. Folic acid is also involved in the metabolic disorder called methylenetetrahydrofolate reductase deficiency (MTHFRD). Folic acid is a potentially toxic compound. Folic acid has been found to be associated with several diseases known as alzheimer's disease, hereditary folate malabsorption, dimethylglycine dehydrogenase deficiency, and rheumatoid arthritis; folic acid has also been linked to the inborn metabolic disorders including folate deficiency.	http://www.hmdb.ca/metabolites/HMDB0000121

Formiminoglutamic acid ; HMDB0000854	Formiminoglutamic acid, also known as N-formimino-L-glutamate or acid, formiminoglutamic, belongs to the class of organic compounds known as glutamic acid and derivatives. Glutamic acid and derivatives are compounds containing glutamic acid or a derivative thereof resulting from reaction of glutamic acid at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. Formiminoglutamic acid is slightly soluble (in water) and a moderately acidic compound (based on its pKa). Formiminoglutamic acid has been detected in multiple biofluids, such as feces and urine. Within the cell, formiminoglutamic acid is primarily located in the cytoplasm. Formiminoglutamic acid participates in a number of enzymatic reactions. In particular, Formiminoglutamic acid can be biosynthesized from 4-imidazolone-5-propionic acid through its interaction with the enzyme probable imidazolonepropionase. In addition, Tetrahydrofolic acid and formiminoglutamic acid can be converted into 5-formiminotetrahydrofolic acid and L-glutamic acid through the action of the enzyme formimidoyltransferase-cyclodeaminase. In humans, formiminoglutamic acid is involved in the histidine metabolism pathway. Formiminoglutamic acid is also involved in the metabolic disorder called the histidinemia pathway.	http://www.hmdb.ca/metabolites/HMDB0000854

Fumaric acid ; HMDB0000134	Fumaric acid, also known as fumarate or E297, belongs to the class of organic compounds known as dicarboxylic acids and derivatives. These are organic compounds containing exactly two carboxylic acid groups. Fumaric acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Fumaric acid has been found in human prostate tissue, and has also been detected in most biofluids, including cerebrospinal fluid, breast milk, urine, and blood. Within the cell, fumaric acid is primarily located in the mitochondria and cytoplasm. Fumaric acid exists in all eukaryotes, ranging from yeast to humans. Fumaric acid participates in a number of enzymatic reactions. In particular, Fumaric acid can be biosynthesized from L-malic acid; which is mediated by the enzyme fumarate hydratase, mitochondrial. Furthermore, Fumaric acid can be biosynthesized from succinic acid through the action of the enzyme succinate dehydrogenase. Furthermore, Fumaric acid and aicar can be biosynthesized from saicar through its interaction with the enzyme adenylosuccinate lyase. Finally, Fumaric acid and adenosine monophosphate can be biosynthesized from adenylsuccinic acid; which is mediated by the enzyme adenylosuccinate lyase. In humans, fumaric acid is involved in the aspartate metabolism pathway, the oncogenic action OF succinate pathway, the citric Acid cycle pathway, and the phenylalanine and tyrosine metabolism pathway. Fumaric acid is also involved in several metabolic disorders, some of which include prolidase deficiency (PD), the alkaptonuria pathway, the tyrosinemia type I pathway, and the hypoacetylaspartia pathway. Outside of the human body, fumaric acid can be found in a number of food items such as common buckwheat, common thyme, garden onion, and jicama. This makes fumaric acid a potential biomarker for the consumption of these food	http://www.hmdb.ca/metabolites/HMDB0000134

	products. Fumaric acid is a potentially toxic compound.	

Fumaric acid ; HMDB00134	Fumaric acid, also known as fumarate or E297, belongs to the class of organic compounds known as dicarboxylic acids and derivatives. These are organic compounds containing exactly two carboxylic acid groups. Fumaric acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Fumaric acid has been found in human prostate tissue, and has also been detected in most biofluids, including cerebrospinal fluid, breast milk, urine, and blood. Within the cell, fumaric acid is primarily located in the mitochondria and cytoplasm. Fumaric acid exists in all eukaryotes, ranging from yeast to humans. Fumaric acid participates in a number of enzymatic reactions. In particular, Fumaric acid can be biosynthesized from L-malic acid; which is mediated by the enzyme fumarate hydratase, mitochondrial. Furthermore, Fumaric acid can be biosynthesized from succinic acid through the action of the enzyme succinate dehydrogenase. Furthermore, Fumaric acid and aicar can be biosynthesized from saicar through its interaction with the enzyme adenylosuccinate lyase. Finally, Fumaric acid and adenosine monophosphate can be biosynthesized from adenylsuccinic acid; which is mediated by the enzyme adenylosuccinate lyase. In humans, fumaric acid is involved in the aspartate metabolism pathway, the oncogenic action OF succinate pathway, the citric Acid cycle pathway, and the phenylalanine and tyrosine metabolism pathway. Fumaric acid is also involved in several metabolic disorders, some of which include prolidase deficiency (PD), the alkaptonuria pathway, the tyrosinemia type I pathway, and the hypoacetylaspartia pathway. Outside of the human body, fumaric acid can be found in a number of food items such as common buckwheat, common thyme, garden onion, and jicama. This makes fumaric acid a potential biomarker for the consumption of these food	http://www.hmdb.ca/metabolites/HMDB0000134

	products. Fumaric acid is a potentially toxic compound.	
Furosemide ; HMDB0001933	Furosemide, also known as frusemide or lasix, belongs to the class of organic compounds known as aminobenzenesulfonamides. These are organic compounds containing a benzenesulfonamide moiety with an amine group attached to the benzene ring. Furosemide is a drug which is used for the treatment of edema associated with congestive heart failure, cirrhosis of the liver, and renal disease, including the nephrotic syndrome. also for the treatment of hypertension alone or in combination with other antihypertensive agents. Furosemide exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Furosemide has been found in human kidney tissue. Furosemide can be converted into furosemide through its interaction with the enzyme solute carrier family 22 member 6. In humans, furosemide is involved in the furosemide action pathway.	http://www.hmdb.ca/metabolites/HMDB0001933
Furosemide ; HMDB01933	Furosemide, also known as frusemide or lasix, belongs to the class of organic compounds known as aminobenzenesulfonamides. These are organic compounds containing a benzenesulfonamide moiety with an amine group attached to the benzene ring. Furosemide is a drug which is used for the treatment of edema associated with congestive heart failure, cirrhosis of the liver, and renal disease, including the nephrotic syndrome. also for the treatment of hypertension alone or in combination with other antihypertensive agents. Furosemide exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Furosemide has been found in human kidney tissue. Furosemide can be converted into furosemide through its interaction with the enzyme solute carrier family 22 member 6. In humans, furosemide is involved in the furosemide action pathway.	http://www.hmdb.ca/metabolites/HMDB0001933

Gabapentin ; HMDB0005015	Gabapentin, also known as neurontin or convalis, belongs to the class of organic compounds known as gamma amino acids and derivatives. These are amino acids having a (-NH2) group attached to the gamma carbon atom. Gabapentin is a drug which is used for the management of postherpetic neuralgia in adults and as adjunctive therapy in the treatment of partial seizures with and without secondary generalization in patients over 12 years of age with epilepsy. Gabapentin exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Gabapentin has been found in human brain tissue, and has also been detected in multiple biofluids, such as feces and blood. Gabapentin participates in a number of enzymatic reactions. In particular, gabapentin can be biosynthesized from gamma-aminobutyric acid. Gabapentin can also be converted into gabapentin enacarbil. Gabapentin is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0005015
Gabapentin ; HMDB05015	Gabapentin, also known as neurontin or convalis, belongs to the class of organic compounds known as gamma amino acids and derivatives. These are amino acids having a (-NH2) group attached to the gamma carbon atom. Gabapentin is a drug which is used for the management of postherpetic neuralgia in adults and as adjunctive therapy in the treatment of partial seizures with and without secondary generalization in patients over 12 years of age with epilepsy. Gabapentin exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Gabapentin has been found in human brain tissue, and has also been detected in multiple biofluids, such as feces and blood. Gabapentin participates in a number of enzymatic reactions. In particular, gabapentin can be biosynthesized from gamma-aminobutyric acid. Gabapentin can also be converted into gabapentin enacarbil. Gabapentin is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0005015

Galactonic acid ; HMDB0000565	Galactonic acid, also known as D-galactonate, belongs to the class of organic compounds known as medium-chain hydroxy acids and derivatives. These are hydroxy acids with a 6 to 12 carbon atoms long side chain. Galactonic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Galactonic acid has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, galactonic acid is primarily located in the cytoplasm. Galactonic acid is also a parent compound for other transformation products, including but not limited to, 6-phospho-2-dehydro-3-deoxy-D-galactonic acid, N-acetyl-D-galactosaminic acid, and D-galactono-1,5-lactone.	http://www.hmdb.ca/metabolites/HMDB0000565
gamma-Carboxyglutamic acid ; HMDB0041900	Gamma-Carboxyglutamic acid, also known as G-carboxyglutamate, belongs to the class of organic compounds known as alpha amino acids. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon). Gamma-Carboxyglutamic acid is soluble (in water) and a moderately acidic compound (based on its pKa).	http://www.hmdb.ca/metabolites/HMDB0041900
gamma-CEHC ; HMDB0001931	Gamma-Cehc, also known as S-llu-alpha or g-cehc, belongs to the class of organic compounds known as 1-benzopyrans. These are organic aromatic compounds that 1-benzopyran, a bicyclic compound made up of a benzene ring fused to a pyran, so that the oxygen atom is at the 1-position. Gamma-Cehc is considered to be a practically insoluble (in water) and relatively neutral molecule. Gamma-Cehc has been primarily detected in blood. Within the cell, Gamma-cehc is primarily located in the membrane (predicted from logP).	http://www.hmdb.ca/metabolites/HMDB0001931

gamma-Glutamylalanine ; HMDB0006248	L-gamma-Glutamyl-L-alanine, also known as -glutamylalanine or L-gamma-glu-L-ala, belongs to the class of organic compounds known as dipeptides. These are organic compounds containing a sequence of exactly two alpha-amino acids joined by a peptide bond. L-gamma-Glutamyl-L-alanine is soluble (in water) and a moderately acidic compound (based on its pKa). L-gamma-Glutamyl-L-alanine exists in all eukaryotes, ranging from yeast to humans. In humans, L-gamma-glutamyl-L-alanine is involved in the glutathione metabolism pathway. L-gamma-Glutamyl-L-alanine is also involved in several metabolic disorders, some of which include glutathione synthetase deficiency, Gamma-glutamyl-transpeptidase deficiency, 5-oxoprolinase deficiency, and Gamma-glutamyltransferase deficiency.	http://www.hmdb.ca/metabolites/HMDB0006248
gamma-Glutamylglutamic acid ; HMDB0011737	Gamma-Glutamylglutamic acid, also known as -glutamylglutamate or gamma-L-glu-L-glu, belongs to the class of organic compounds known as glutamic acid and derivatives. Glutamic acid and derivatives are compounds containing glutamic acid or a derivative thereof resulting from reaction of glutamic acid at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. Gamma-Glutamylglutamic acid is slightly soluble (in water) and a moderately acidic compound (based on its pKa). Gamma-Glutamylglutamic acid has been detected in multiple biofluids, such as feces and blood. Gamma-Glutamylglutamic acid can be biosynthesized from L-glutamic acid.	http://www.hmdb.ca/metabolites/HMDB0011737
gamma-Glutamylglycine ; HMDB0011667	Gamma-Glutamylglycine, also known as N-L-glutamylglycine or L-gamma-glu-gly, belongs to the class of organic compounds known as dipeptides. These are organic compounds containing a sequence of exactly two alpha-amino acids joined by a peptide bond. Gamma-Glutamylglycine is soluble (in water) and a moderately acidic compound (based on its pKa).	http://www.hmdb.ca/metabolites/HMDB0011667

gamma-Glutamylhistidine ; HMDB0029151	Gamma-Glutamylhistidine, also known as L-gamma-glu-L-his or ge-H dipeptide, belongs to the class of organic compounds known as dipeptides. These are organic compounds containing a sequence of exactly two alpha-amino acids joined by a peptide bond. Gamma-Glutamylhistidine is slightly soluble (in water) and a moderately acidic compound (based on its pKa).	http://www.hmdb.ca/metabolites/HMDB0029151
gamma-Glutamylleucine ; HMDB0011171	Gamma-Glutamylleucine, also known as L-gamma-glu-L-leu or -L-glutamyl-L-leucine, belongs to the class of organic compounds known as dipeptides. These are organic compounds containing a sequence of exactly two alpha-amino acids joined by a peptide bond. Gamma-Glutamylleucine is slightly soluble (in water) and a moderately acidic compound (based on its pKa). Gamma-Glutamylleucine has been detected in multiple biofluids, such as feces and blood. Gamma-Glutamylleucine can be biosynthesized from glutamic acid and leucine. Outside of the human body, Gamma-glutamylleucine can be found in soft-necked garlic. This makes Gamma-glutamylleucine a potential biomarker for the consumption of this food product.	http://www.hmdb.ca/metabolites/HMDB0011171
gamma-Glutamylmethionine ; HMDB0034367	H-Glu(met-OH)-OH belongs to the class of organic compounds known as dipeptides. These are organic compounds containing a sequence of exactly two alpha-amino acids joined by a peptide bond. H-Glu(met-OH)-OH exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). H-Glu(met-OH)-OH can be biosynthesized from L-glutamic acid and L-methionine.	http://www.hmdb.ca/metabolites/HMDB0034367

gamma-Glutamylphenylalanine ; HMDB0000594	Gamma-Glutamylphenylalanine, also known as gamma-glu-phe or -glu-phe, belongs to the class of organic compounds known as phenylalanine and derivatives. Phenylalanine and derivatives are compounds containing phenylalanine or a derivative thereof resulting from reaction of phenylalanine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. Gamma-Glutamylphenylalanine is considered to be a practically insoluble (in water) and relatively neutral molecule. Gamma-Glutamylphenylalanine has been found in human kidney tissue, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, Gamma-glutamylphenylalanine is primarily located in the cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000594
gamma-Glutamylthreonine ; HMDB0029159	Gamma-Glutamylthreonine, also known as L-gamma-glu-L-THR or -L-glutamyl-L-threonine, belongs to the class of organic compounds known as dipeptides. These are organic compounds containing a sequence of exactly two alpha-amino acids joined by a peptide bond. Gamma-Glutamylthreonine is soluble (in water) and a moderately acidic compound (based on its pKa). Gamma-Glutamylthreonine has been primarily detected in blood.	http://www.hmdb.ca/metabolites/HMDB0029159
gamma-Glutamyltryptophan ; HMDB0029160	Gamma-Glutamyltryptophan, also known as L-gamma-glu-L-TRP or ge-W dipeptide, belongs to the class of organic compounds known as dipeptides. These are organic compounds containing a sequence of exactly two alpha-amino acids joined by a peptide bond. Gamma-Glutamyltryptophan is considered to be a practically insoluble (in water) and relatively neutral molecule.	http://www.hmdb.ca/metabolites/HMDB0029160

gamma-Glutamyltyrosine ; HMDB0011741	Gamma-Glutamyltyrosine, also known as glutyrosine or -L-glutamyl-L-tyrosine, belongs to the class of organic compounds known as tyrosine and derivatives. Tyrosine and derivatives are compounds containing tyrosine or a derivative thereof resulting from reaction of tyrosine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. Gamma-Glutamyltyrosine is considered to be a practically insoluble (in water) and relatively neutral molecule. Gamma-Glutamyltyrosine has been primarily detected in blood. Gamma-Glutamyltyrosine can be biosynthesized from L-glutamic acid and L-tyrosine.	http://www.hmdb.ca/metabolites/HMDB0011741
gamma-Glutamylvaline ; HMDB0011172	Gamma-Glutamylvaline, also known as L-gamma-glu-L-val or -L-glutamyl-L-valine, belongs to the class of organic compounds known as dipeptides. These are organic compounds containing a sequence of exactly two alpha-amino acids joined by a peptide bond. Gamma-Glutamylvaline is slightly soluble (in water) and a moderately acidic compound (based on its pKa). Gamma-Glutamylvaline has been primarily detected in blood.	http://www.hmdb.ca/metabolites/HMDB0011172

Gamma-Linolenic acid ; HMDB0003073	Gamma-Linolenic acid, also known as 18:3 (N-6) or GLA, belongs to the class of organic compounds known as lineolic acids and derivatives. These are derivatives of lineolic acid. Lineolic acid is a polyunsaturated omega-6 18 carbon long fatty acid, with two CC double bonds at the 9- and 12-positions. Gamma-Linolenic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Gamma-Linolenic acid has been found in human adipose tissue and epidermis tissues, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, Gamma-linolenic acid is primarily located in the cytoplasm and membrane (predicted from logP). Gamma-Linolenic acid participates in a number of enzymatic reactions. In particular, Gamma-Linolenic acid can be biosynthesized from linoleic acid through its interaction with the enzyme fatty acid desaturase 2. In addition, Gamma-Linolenic acid can be converted into 8,11,14-eicosatrienoic acid through the action of the enzyme elongation OF very long chain fatty acids protein 5. In humans, Gamma-linolenic acid is involved in the Alpha linolenic Acid and linoleic Acid metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0003073

Gamma-Linolenic acid ; HMDB03073	Gamma-Linolenic acid, also known as 18:3 (N-6) or GLA, belongs to the class of organic compounds known as lineolic acids and derivatives. These are derivatives of lineolic acid. Lineolic acid is a polyunsaturated omega-6 18 carbon long fatty acid, with two CC double bonds at the 9- and 12-positions. Gamma-Linolenic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Gamma-Linolenic acid has been found in human adipose tissue and epidermis tissues, and has also been detected in multiple biofluids, such as blood and urine. Within the cell, Gamma-linolenic acid is primarily located in the cytoplasm and membrane (predicted from logP). Gamma-Linolenic acid participates in a number of enzymatic reactions. In particular, Gamma-Linolenic acid can be biosynthesized from linoleic acid through its interaction with the enzyme fatty acid desaturase 2. In addition, Gamma-Linolenic acid can be converted into 8,11,14-eicosatrienoic acid through the action of the enzyme elongation OF very long chain fatty acids protein 5. In humans, Gamma-linolenic acid is involved in the Alpha linolenic Acid and linoleic Acid metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0003073

Gentisic acid ; HMDB0000152	Gentisic acid, also known as gentisate or 2,5-dioxybenzoate, belongs to the class of organic compounds known as hydroxybenzoic acid derivatives. Hydroxybenzoic acid derivatives are compounds containing a hydroxybenzoic acid (or a derivative), which is a benzene ring bearing a carboxyl and a hydroxyl groups. Gentisic acid exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Gentisic acid has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, gentisic acid is primarily located in the cytoplasm. Gentisic acid participates in a number of enzymatic reactions. In particular, gentisic acid can be biosynthesized from benzoic acid. Gentisic acid is also a parent compound for other transformation products, including but not limited to, mygalin, 2,5-dihydroxybenzoic acid 5-O-beta-D-glucoside, and 2,5-dihydroxybenzoyl-CoA. Outside of the human body, gentisic acid can be found in a number of food items such as hyssop, common pea, nutmeg, and lemon balm. This makes gentisic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000152

Gentisic acid ; HMDB00152	Gentisic acid, also known as gentisate or 2,5-dioxybenzoate, belongs to the class of organic compounds known as hydroxybenzoic acid derivatives. Hydroxybenzoic acid derivatives are compounds containing a hydroxybenzoic acid (or a derivative), which is a benzene ring bearing a carboxyl and a hydroxyl groups. Gentisic acid exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Gentisic acid has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, gentisic acid is primarily located in the cytoplasm. Gentisic acid participates in a number of enzymatic reactions. In particular, gentisic acid can be biosynthesized from benzoic acid. Gentisic acid is also a parent compound for other transformation products, including but not limited to, mygalin, 2,5-dihydroxybenzoic acid 5-O-beta-D-glucoside, and 2,5-dihydroxybenzoyl-CoA. Outside of the human body, gentisic acid can be found in a number of food items such as hyssop, common pea, nutmeg, and lemon balm. This makes gentisic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000152
Gluconic acid ; HMDB0000625	Gluconic acid, also known as D-gluconate or dextronic acid, belongs to the class of organic compounds known as sugar acids and derivatives. Sugar acids and derivatives are compounds containing a saccharide unit which bears a carboxylic acid group. Gluconic acid is a drug which is used for use as part of electrolyte supplementation in total parenteral nutrition [fda label]. Gluconic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Gluconic acid has been found in human prostate tissue, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, gluconic acid is primarily located in the cytoplasm. Gluconic acid exists in all eukaryotes, ranging from yeast to humans.	http://www.hmdb.ca/metabolites/HMDB0000625

Glutamate, gamma-methyl ester ; HMDB0061715	Glutamate, gamma-methyl ester, also known as glutamic acid, -methyl ester, belongs to the class of organic compounds known as glutamic acid and derivatives. Glutamic acid and derivatives are compounds containing glutamic acid or a derivative thereof resulting from reaction of glutamic acid at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. Glutamate, gamma-methyl ester is soluble (in water) and a moderately acidic compound (based on its pKa).	http://www.hmdb.ca/metabolites/HMDB0061715
Glutamyllysine ; HMDB0004207	Glutamyllysine, also known as L-glu-L-lys or E-K, belongs to the class of organic compounds known as dipeptides. These are organic compounds containing a sequence of exactly two alpha-amino acids joined by a peptide bond. Glutamyllysine is slightly soluble (in water) and a weakly acidic compound (based on its pKa). Glutamyllysine has been primarily detected in cerebrospinal fluid. Glutamyllysine can be biosynthesized from L-glutamic acid and L-lysine.	http://www.hmdb.ca/metabolites/HMDB0004207
Glutamyllysine ; HMDB04207	Glutamyllysine, also known as L-glu-L-lys or E-K, belongs to the class of organic compounds known as dipeptides. These are organic compounds containing a sequence of exactly two alpha-amino acids joined by a peptide bond. Glutamyllysine is slightly soluble (in water) and a weakly acidic compound (based on its pKa). Glutamyllysine has been primarily detected in cerebrospinal fluid. Glutamyllysine can be biosynthesized from L-glutamic acid and L-lysine.	http://www.hmdb.ca/metabolites/HMDB0004207
Glutarylcarnitine ; HMDB0013130	3-Hydroxy-9Z-octadecenoylcarnitine belongs to the class of organic compounds known as beta hydroxy acids and derivatives. Beta hydroxy acids and derivatives are compounds containing a carboxylic acid substituted with a hydroxyl group on the C3 carbon atom. 3-Hydroxy-9Z-octadecenoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule.	http://www.hmdb.ca/metabolites/HMDB0013130

Glutarylcarnitine ; HMDB13130	3-Hydroxy-9Z-octadecenoylcarnitine belongs to the class of organic compounds known as beta hydroxy acids and derivatives. Beta hydroxy acids and derivatives are compounds containing a carboxylic acid substituted with a hydroxyl group on the C3 carbon atom. 3-Hydroxy-9Z-octadecenoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule.	http://www.hmdb.ca/metabolites/HMDB0013130

Glutathione ; HMDB0000125	Glutathione, also known as GSH or agifutol S, belongs to the class of organic compounds known as peptides. Peptides are compounds containing an amide derived from two or more amino carboxylic acid molecules (the same or different) by formation of a covalent bond from the carbonyl carbon of one to the nitrogen atom of another. Glutathione is a drug which is used for nutritional supplementation, also for treating dietary shortage or imbalance. Glutathione exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Glutathione has been found throughout all human tissues, and has also been primarily detected in saliva, urine, blood, and cerebrospinal fluid. Within the cell, glutathione is primarily located in the cytoplasm, mitochondria and endoplasmic reticulum. Glutathione exists in all eukaryotes, ranging from yeast to humans. Glutathione participates in a number of enzymatic reactions. In particular, Glutathione can be biosynthesized from Gamma-glutamylcysteine and glycine through its interaction with the enzyme glutathione synthetase. Furthermore, Glutathione can be biosynthesized from oxidized glutathione; which is mediated by the enzyme glutathione reductase, mitochondrial. Furthermore, Glutathione can be biosynthesized from Gamma-glutamylcysteine and glycine; which is catalyzed by the enzyme glutathione synthetase. Finally, Glutathione can be converted into oxidized glutathione; which is catalyzed by the enzyme glutathione peroxidase 1. In humans, glutathione is involved in the diflunisal action pathway, the homocarnosinosis pathway, the trisalicylate-choline action pathway, and the cyclophosphamide metabolism pathway. Glutathione is also involved in several metabolic disorders, some of which include the leigh syndrome pathway, Gamma-glutamyltransferase deficiency, the tiaprofenic Acid action pathway, and the 2-hydroxyglutric aciduria (D and L	http://www.hmdb.ca/metabolites/HMDB0000125

	form) pathway. Outside of the human body, glutathione can be found in dill. This makes glutathione a potential biomarker for the consumption of this food product. Glutathione is a potentially toxic compound.	

Glutathione ; HMDB00125	Glutathione, also known as GSH or agifutol S, belongs to the class of organic compounds known as peptides. Peptides are compounds containing an amide derived from two or more amino carboxylic acid molecules (the same or different) by formation of a covalent bond from the carbonyl carbon of one to the nitrogen atom of another. Glutathione is a drug which is used for nutritional supplementation, also for treating dietary shortage or imbalance. Glutathione exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Glutathione has been found throughout all human tissues, and has also been primarily detected in saliva, urine, blood, and cerebrospinal fluid. Within the cell, glutathione is primarily located in the cytoplasm, mitochondria and endoplasmic reticulum. Glutathione exists in all eukaryotes, ranging from yeast to humans. Glutathione participates in a number of enzymatic reactions. In particular, Glutathione can be biosynthesized from Gamma-glutamylcysteine and glycine through its interaction with the enzyme glutathione synthetase. Furthermore, Glutathione can be biosynthesized from oxidized glutathione; which is mediated by the enzyme glutathione reductase, mitochondrial. Furthermore, Glutathione can be biosynthesized from Gamma-glutamylcysteine and glycine; which is catalyzed by the enzyme glutathione synthetase. Finally, Glutathione can be converted into oxidized glutathione; which is catalyzed by the enzyme glutathione peroxidase 1. In humans, glutathione is involved in the diflunisal action pathway, the homocarnosinosis pathway, the trisalicylate-choline action pathway, and the cyclophosphamide metabolism pathway. Glutathione is also involved in several metabolic disorders, some of which include the leigh syndrome pathway, Gamma-glutamyltransferase deficiency, the tiaprofenic Acid action pathway, and the 2-hydroxyglutric aciduria (D and L	http://www.hmdb.ca/metabolites/HMDB0000125

	form) pathway. Outside of the human body, glutathione can be found in dill. This makes glutathione a potential biomarker for the consumption of this food product. Glutathione is a potentially toxic compound.	
Glyceric acid ; HMDB0000139	Glyceric acid, also known as glycerate or D-groa, belongs to the class of organic compounds known as sugar acids and derivatives. Sugar acids and derivatives are compounds containing a saccharide unit which bears a carboxylic acid group. Glyceric acid is soluble (in water) and a weakly acidic compound (based on its pKa). Glyceric acid has been found in human prostate tissue, and has also been detected in most biofluids, including cerebrospinal fluid, sweat, blood, and urine. Within the cell, glyceric acid is primarily located in the cytoplasm and mitochondria. Glyceric acid exists in all eukaryotes, ranging from yeast to humans. Glyceric acid participates in a number of enzymatic reactions. In particular, Glyceric acid can be converted into 3-phosphoglyceric acid; which is mediated by the enzyme glycerate kinase. In addition, Glyceric acid can be biosynthesized from 3-phosphoglyceric acid; which is mediated by the enzyme glycerate kinase. In humans, glyceric acid is involved in the glycine and serine metabolism pathway, the glycerolipid metabolism pathway, and the D-glyceric acidura pathway. Glyceric acid is also involved in several metabolic disorders, some of which include dimethylglycine dehydrogenase deficiency, the sarcosinemia pathway, the NON ketotic hyperglycinemia pathway, and glycerol kinase deficiency. Glyceric acid is a potentially toxic compound. Glyceric acid has been found to be associated with the diseases known as schizophrenia; glyceric acid has also been linked to several inborn metabolic disorders including d-glyceric acidemia, primary hyperoxaluria II, and primary hyperoxaluria.	http://www.hmdb.ca/metabolites/HMDB0000139

Glyceric acid ; HMDB00139	Glyceric acid, also known as glycerate or D-groa, belongs to the class of organic compounds known as sugar acids and derivatives. Sugar acids and derivatives are compounds containing a saccharide unit which bears a carboxylic acid group. Glyceric acid is soluble (in water) and a weakly acidic compound (based on its pKa). Glyceric acid has been found in human prostate tissue, and has also been detected in most biofluids, including cerebrospinal fluid, sweat, blood, and urine. Within the cell, glyceric acid is primarily located in the cytoplasm and mitochondria. Glyceric acid exists in all eukaryotes, ranging from yeast to humans. Glyceric acid participates in a number of enzymatic reactions. In particular, Glyceric acid can be converted into 3-phosphoglyceric acid; which is mediated by the enzyme glycerate kinase. In addition, Glyceric acid can be biosynthesized from 3-phosphoglyceric acid; which is mediated by the enzyme glycerate kinase. In humans, glyceric acid is involved in the glycine and serine metabolism pathway, the glycerolipid metabolism pathway, and the D-glyceric acidura pathway. Glyceric acid is also involved in several metabolic disorders, some of which include dimethylglycine dehydrogenase deficiency, the sarcosinemia pathway, the NON ketotic hyperglycinemia pathway, and glycerol kinase deficiency. Glyceric acid is a potentially toxic compound. Glyceric acid has been found to be associated with the diseases known as schizophrenia; glyceric acid has also been linked to several inborn metabolic disorders including d-glyceric acidemia, primary hyperoxaluria II, and primary hyperoxaluria.	http://www.hmdb.ca/metabolites/HMDB0000139

Glycerol 3-phosphate ; HMDB0000126	Glycerol 3-phosphate, also known as glycerophosphoric acid or sn-gro-1-p, belongs to the class of organic compounds known as glycerophosphates. Glycerophosphates are compounds containing a glycerol linked to a phosphate group. Glycerol 3-phosphate exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Glycerol 3-phosphate has been found in human prostate tissue, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, glycerol 3-phosphate is primarily located in the cytoplasm and mitochondria. Glycerol 3-phosphate exists in all eukaryotes, ranging from yeast to humans. Glycerol 3-phosphate participates in a number of enzymatic reactions. In particular, Glycerol 3-phosphate can be biosynthesized from dihydroxyacetone phosphate through its interaction with the enzyme glycerol-3-phosphate dehydrogenase [nad(+)], cytoplasmic. Furthermore, Glycerol 3-phosphate can be converted into cytidine monophosphate; which is catalyzed by the enzyme CDP-diacylglycerol--glycerol-3-phosphate 3-phosphatidyltransferase, mitochondrial. Furthermore, Glycerol 3-phosphate can be biosynthesized from dihydroxyacetone phosphate; which is mediated by the enzyme glycerol-3-phosphate dehydrogenase [nad(+)], cytoplasmic. Furthermore, Palmityl-CoA and glycerol 3-phosphate can be converted into lpa(16:0/0:0) through its interaction with the enzyme glycerol-3-phosphate acyltransferase. Furthermore, Glycerol 3-phosphate can be biosynthesized from dihydroxyacetone phosphate; which is catalyzed by the enzyme glycerol-3-phosphate dehydrogenase [nad(+)], cytoplasmic. Finally, Palmityl-CoA and glycerol 3-phosphate can be converted into lpa(16:0/0:0) through the action of the enzyme glycerol-3-phosphate	http://www.hmdb.ca/metabolites/HMDB0000126

	acyltransferase. In humans, glycerol 3-phosphate is involved in cardiolipin biosynthesis CL(a-13:0/i-24:0/i-24:0/i-15:0) pathway, cardiolipin biosynthesis CL(i-12:0/i-22:0/i-19:0/i-18:0) pathway, cardiolipin biosynthesis CL(18:0/18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:1(9Z)) pathway, and cardiolipin biosynthesis CL(18:2(9Z,12Z)/18:1(9Z)/18:1(11Z)/16:0) pathway. Glycerol 3-phosphate is also involved in several metabolic disorders, some of which include de novo triacylglycerol biosynthesis TG(22:5(7Z,10Z,13Z,16Z,19Z)/18:3(9Z,12Z,15Z)/22:5(7Z,10Z,13Z,16Z,19Z)) pathway, de novo triacylglycerol biosynthesis TG(i-22:0/i-20:0/21:0) pathway, de novo triacylglycerol biosynthesis TG(20:0/19:0/i-20:0) pathway, and de novo triacylglycerol biosynthesis TG(18:1(11Z)/14:0/20:3(8Z,11Z,14Z)) pathway. Outside of the human body, glycerol 3-phosphate can be found in a number of food items such as sweet rowanberry, canada blueberry, spinach, and pepper (c. baccatum). This makes glycerol 3-phosphate a potential biomarker for the consumption of these food products.	

Glycerol 3-phosphate ; HMDB00126	Glycerol 3-phosphate, also known as glycerophosphoric acid or sn-gro-1-p, belongs to the class of organic compounds known as glycerophosphates. Glycerophosphates are compounds containing a glycerol linked to a phosphate group. Glycerol 3-phosphate exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Glycerol 3-phosphate has been found in human prostate tissue, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, glycerol 3-phosphate is primarily located in the cytoplasm and mitochondria. Glycerol 3-phosphate exists in all eukaryotes, ranging from yeast to humans. Glycerol 3-phosphate participates in a number of enzymatic reactions. In particular, Glycerol 3-phosphate can be biosynthesized from dihydroxyacetone phosphate through its interaction with the enzyme glycerol-3-phosphate dehydrogenase [nad(+)], cytoplasmic. Furthermore, Glycerol 3-phosphate can be converted into cytidine monophosphate; which is catalyzed by the enzyme CDP-diacylglycerol--glycerol-3-phosphate 3-phosphatidyltransferase, mitochondrial. Furthermore, Glycerol 3-phosphate can be biosynthesized from dihydroxyacetone phosphate; which is mediated by the enzyme glycerol-3-phosphate dehydrogenase [nad(+)], cytoplasmic. Furthermore, Palmityl-CoA and glycerol 3-phosphate can be converted into lpa(16:0/0:0) through its interaction with the enzyme glycerol-3-phosphate acyltransferase. Furthermore, Glycerol 3-phosphate can be biosynthesized from dihydroxyacetone phosphate; which is catalyzed by the enzyme glycerol-3-phosphate dehydrogenase [nad(+)], cytoplasmic. Finally, Palmityl-CoA and glycerol 3-phosphate can be converted into lpa(16:0/0:0) through the action of the enzyme glycerol-3-phosphate	http://www.hmdb.ca/metabolites/HMDB0000126

	acyltransferase. In humans, glycerol 3-phosphate is involved in cardiolipin biosynthesis CL(a-13:0/i-24:0/i-24:0/i-15:0) pathway, cardiolipin biosynthesis CL(i-12:0/i-22:0/i-19:0/i-18:0) pathway, cardiolipin biosynthesis CL(18:0/18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:1(9Z)) pathway, and cardiolipin biosynthesis CL(18:2(9Z,12Z)/18:1(9Z)/18:1(11Z)/16:0) pathway. Glycerol 3-phosphate is also involved in several metabolic disorders, some of which include de novo triacylglycerol biosynthesis TG(22:5(7Z,10Z,13Z,16Z,19Z)/18:3(9Z,12Z,15Z)/22:5(7Z,10Z,13Z,16Z,19Z)) pathway, de novo triacylglycerol biosynthesis TG(i-22:0/i-20:0/21:0) pathway, de novo triacylglycerol biosynthesis TG(20:0/19:0/i-20:0) pathway, and de novo triacylglycerol biosynthesis TG(18:1(11Z)/14:0/20:3(8Z,11Z,14Z)) pathway. Outside of the human body, glycerol 3-phosphate can be found in a number of food items such as sweet rowanberry, canada blueberry, spinach, and pepper (c. baccatum). This makes glycerol 3-phosphate a potential biomarker for the consumption of these food products.	

Glycerol ; HMDB0000131	Glycerol, also known as glycerin or glycyl alcohol, belongs to the class of organic compounds known as sugar alcohols. These are hydrogenated forms of carbohydrate in which the carbonyl group (aldehyde or ketone, reducing sugar) has been reduced to a primary or secondary hydroxyl group. Glycerol exists as a liquid, very soluble (in water), and a very weakly acidic compound (based on its pKa). Glycerol has been found throughout most human tissues, and has also been detected in most biofluids, including cerebrospinal fluid, sweat, feces, and blood. Within the cell, glycerol is primarily located in the mitochondria, myelin sheath and cytoplasm. Glycerol exists in all eukaryotes, ranging from yeast to humans. Glycerol participates in a number of enzymatic reactions. In particular, Glycerol can be biosynthesized from glyceraldehyde through the action of the enzyme aldose reductase. Furthermore, Glycerol can be converted into glycerol 3-phosphate through the action of the enzyme glycerol kinase. Finally, D-Galactose and glycerol can be converted into galactosylglycerol through the action of the enzyme Alpha-galactosidase a. In humans, glycerol is involved in the D-glyceric acidura pathway, the galactose metabolism pathway, and the glycerolipid metabolism pathway. Glycerol is also involved in a few metabolic disorders, which include glycerol kinase deficiency, the galactosemia pathway, and familial lipoprotein lipase deficiency. Glycerol is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000131

Glycerol triheptadecanoate ; HMDB0031106	TG(17:0/17:0/17:0), also known as triheptadecanoin, 8CI or trimargarin, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. Thus, TG(17:0/17:0/17:0) is considered to be a triradylglycerol lipid molecule. TG(17:0/17:0/17:0) exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. TG(17:0/17:0/17:0) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(17:0/17:0/17:0) is primarily located in the membrane (predicted from logP) and adiposome.	http://www.hmdb.ca/metabolites/HMDB0031106
Glycerol triheptadecanoate ; HMDB31106	TG(17:0/17:0/17:0), also known as triheptadecanoin, 8CI or trimargarin, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. Thus, TG(17:0/17:0/17:0) is considered to be a triradylglycerol lipid molecule. TG(17:0/17:0/17:0) exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. TG(17:0/17:0/17:0) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(17:0/17:0/17:0) is primarily located in the membrane (predicted from logP) and adiposome.	http://www.hmdb.ca/metabolites/HMDB0031106

Glycerophosphocholine ; HMDB0000086	Glycerophosphocholine, also known as choline alfoscerate or GPC, belongs to the class of organic compounds known as glycerophosphocholines. These are lipids containing a glycerol moiety carrying a phosphocholine at the 3-position. Glycerophosphocholine exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). Glycerophosphocholine has been found throughout most human tissues, and has also been detected in most biofluids, including semen, cerebrospinal fluid, saliva, and feces. Within the cell, glycerophosphocholine is primarily located in the cytoplasm. Glycerophosphocholine exists in all eukaryotes, ranging from yeast to humans. Glycerophosphocholine participates in a number of enzymatic reactions. In particular, Glycerophosphocholine can be biosynthesized from 11-cis-retinol and PC(24:1(15Z)/15:0); which is mediated by the enzyme lecithin retinol acyltransferase. In addition, Retinyl ester and glycerophosphocholine can be biosynthesized from vitamin a and PC(24:1(15Z)/15:0); which is mediated by the enzyme lecithin retinol acyltransferase. In humans, glycerophosphocholine is involved in the retinol metabolism pathway. Glycerophosphocholine is also involved in the metabolic disorder called vitamin a deficiency.	http://www.hmdb.ca/metabolites/HMDB0000086

Glycerophosphocholine ; HMDB00086	Glycerophosphocholine, also known as choline alfoscerate or GPC, belongs to the class of organic compounds known as glycerophosphocholines. These are lipids containing a glycerol moiety carrying a phosphocholine at the 3-position. Glycerophosphocholine exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). Glycerophosphocholine has been found throughout most human tissues, and has also been detected in most biofluids, including semen, cerebrospinal fluid, saliva, and feces. Within the cell, glycerophosphocholine is primarily located in the cytoplasm. Glycerophosphocholine exists in all eukaryotes, ranging from yeast to humans. Glycerophosphocholine participates in a number of enzymatic reactions. In particular, Glycerophosphocholine can be biosynthesized from 11-cis-retinol and PC(24:1(15Z)/15:0); which is mediated by the enzyme lecithin retinol acyltransferase. In addition, Retinyl ester and glycerophosphocholine can be biosynthesized from vitamin a and PC(24:1(15Z)/15:0); which is mediated by the enzyme lecithin retinol acyltransferase. In humans, glycerophosphocholine is involved in the retinol metabolism pathway. Glycerophosphocholine is also involved in the metabolic disorder called vitamin a deficiency.	http://www.hmdb.ca/metabolites/HMDB0000086

Glycerylphosphorylethanolamine ; HMDB0000114	Glycerylphosphorylethanolamine, also known as gpea, belongs to the class of organic compounds known as organic phosphoramides. These are organic compounds containing the phosphoric acid amide functional group. Glycerylphosphorylethanolamine is soluble (in water) and a moderately acidic compound (based on its pKa). Glycerylphosphorylethanolamine has been found in human brain, prostate and liver tissues. Within the cell, glycerylphosphorylethanolamine is primarily located in the cytoplasm. Glycerylphosphorylethanolamine can be converted into glycerol 3-phosphate and ethanolamine through its interaction with the enzyme glycerophosphodiester phosphodiesterase 1. In humans, glycerylphosphorylethanolamine is involved in phospholipid biosynthesis pathway.	http://www.hmdb.ca/metabolites/HMDB0000114

Glycine ; HMDB0000123	Glycine, also known as Gly or aminoacetic acid, belongs to the class of organic compounds known as alpha amino acids. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon). Glycine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Glycine has been found throughout most human tissues, and has also been detected in most biofluids, including urine, cerebrospinal fluid, saliva, and bile. Glycine can be found anywhere throughout the human cell, such as in myelin sheath, cytoplasm, peroxisome, and mitochondria. Glycine exists in all eukaryotes, ranging from yeast to humans. Glycine participates in a number of enzymatic reactions. In particular, Gamma-Glutamylcysteine and glycine can be converted into glutathione through its interaction with the enzyme glutathione synthetase. Furthermore, Chenodeoxycholoyl-CoA and glycine can be converted into chenodeoxycholic acid glycine conjugate and glycocholic acid; which is mediated by the enzyme bile acid-coa:amino acid N-acyltransferase. Furthermore, Acetyl-CoA and glycine can be converted into L-2-amino-3-oxobutanoic acid through the action of the enzyme 2-amino-3-ketobutyrate coenzyme A ligase, mitochondrial. Finally, Formaldehyde and glycine can be biosynthesized from sarcosine; which is mediated by the enzyme sarcosine dehydrogenase, mitochondrial. In humans, glycine is involved in the homocarnosinosis pathway, the sarcosine oncometabolite pathway, the glutathione metabolism pathway, and the thioguanine action pathway. Glycine is also involved in several metabolic disorders, some of which include the ammonia recycling pathway, congenital erythropoietic porphyria (cep) or gunther disease pathway, adenylosuccinate lyase deficiency, and succinic semialdehyde dehydrogenase	http://www.hmdb.ca/metabolites/HMDB0000123

	deficiency. Glycine is a potentially toxic compound. Glycine has been found to be associated with several diseases known as phosphoserine phosphatase deficiency, glucoglycinuria, epilepsy, early-onset, vitamin b6-dependent, and hyperglycinemia, lactic acidosis, and seizures; glycine has also been linked to the inborn metabolic disorders including tyrosinemia I.	

Glycine ; HMDB00123	Glycine, also known as Gly or aminoacetic acid, belongs to the class of organic compounds known as alpha amino acids. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon). Glycine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Glycine has been found throughout most human tissues, and has also been detected in most biofluids, including urine, cerebrospinal fluid, saliva, and bile. Glycine can be found anywhere throughout the human cell, such as in myelin sheath, cytoplasm, peroxisome, and mitochondria. Glycine exists in all eukaryotes, ranging from yeast to humans. Glycine participates in a number of enzymatic reactions. In particular, Gamma-Glutamylcysteine and glycine can be converted into glutathione through its interaction with the enzyme glutathione synthetase. Furthermore, Chenodeoxycholoyl-CoA and glycine can be converted into chenodeoxycholic acid glycine conjugate and glycocholic acid; which is mediated by the enzyme bile acid-coa:amino acid N-acyltransferase. Furthermore, Acetyl-CoA and glycine can be converted into L-2-amino-3-oxobutanoic acid through the action of the enzyme 2-amino-3-ketobutyrate coenzyme A ligase, mitochondrial. Finally, Formaldehyde and glycine can be biosynthesized from sarcosine; which is mediated by the enzyme sarcosine dehydrogenase, mitochondrial. In humans, glycine is involved in the homocarnosinosis pathway, the sarcosine oncometabolite pathway, the glutathione metabolism pathway, and the thioguanine action pathway. Glycine is also involved in several metabolic disorders, some of which include the ammonia recycling pathway, congenital erythropoietic porphyria (cep) or gunther disease pathway, adenylosuccinate lyase deficiency, and succinic semialdehyde dehydrogenase	http://www.hmdb.ca/metabolites/HMDB0000123

	deficiency. Glycine is a potentially toxic compound. Glycine has been found to be associated with several diseases known as phosphoserine phosphatase deficiency, glucoglycinuria, epilepsy, early-onset, vitamin b6-dependent, and hyperglycinemia, lactic acidosis, and seizures; glycine has also been linked to the inborn metabolic disorders including tyrosinemia I.	
Glycocholic acid ; HMDB0000138	Glycocholic acid, also known as glycocholate or cholylglycine, belongs to the class of organic compounds known as glycinated bile acids and derivatives. Glycinated bile acids and derivatives are compounds with a structure characterized by the presence of a glycine linked to a bile acid skeleton. Glycocholic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Glycocholic acid has been found in human hepatic tissue, prostate and liver tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, glycocholic acid is primarily located in the membrane (predicted from logP) and cytoplasm. Glycocholic acid participates in a number of enzymatic reactions. In particular, Chenodeoxycholic acid glycine conjugate and glycocholic acid can be biosynthesized from chenodeoxycholoyl-CoA and glycine; which is mediated by the enzyme bile acid-coa:amino acid N-acyltransferase. In addition, Glycocholic acid can be biosynthesized from choloyl-CoA and glycine; which is catalyzed by the enzyme bile acid-coa:amino acid N-acyltransferase. In humans, glycocholic acid is involved in congenital bile acid synthesis defect type II pathway, bile acid biosynthesis pathway, congenital bile acid synthesis defect type III pathway, and the cerebrotendinous xanthomatosis (CTX) pathway. Glycocholic acid is also involved in a few metabolic disorders, which include the familial hypercholanemia (fhca) pathway, 27-hydroxylase deficiency, and the zellweger syndrome pathway.	http://www.hmdb.ca/metabolites/HMDB0000138

Glycocholic acid ; HMDB00138	Glycocholic acid, also known as glycocholate or cholylglycine, belongs to the class of organic compounds known as glycinated bile acids and derivatives. Glycinated bile acids and derivatives are compounds with a structure characterized by the presence of a glycine linked to a bile acid skeleton. Glycocholic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Glycocholic acid has been found in human hepatic tissue, prostate and liver tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, glycocholic acid is primarily located in the membrane (predicted from logP) and cytoplasm. Glycocholic acid participates in a number of enzymatic reactions. In particular, Chenodeoxycholic acid glycine conjugate and glycocholic acid can be biosynthesized from chenodeoxycholoyl-CoA and glycine; which is mediated by the enzyme bile acid-coa:amino acid N-acyltransferase. In addition, Glycocholic acid can be biosynthesized from choloyl-CoA and glycine; which is catalyzed by the enzyme bile acid-coa:amino acid N-acyltransferase. In humans, glycocholic acid is involved in congenital bile acid synthesis defect type II pathway, bile acid biosynthesis pathway, congenital bile acid synthesis defect type III pathway, and the cerebrotendinous xanthomatosis (CTX) pathway. Glycocholic acid is also involved in a few metabolic disorders, which include the familial hypercholanemia (fhca) pathway, 27-hydroxylase deficiency, and the zellweger syndrome pathway.	http://www.hmdb.ca/metabolites/HMDB0000138

Glycoursodeoxycholic acid ; HMDB0000708	Glycoursodeoxycholic acid, also known as gudca or ursodeoxycholylglycine, belongs to the class of organic compounds known as glycinated bile acids and derivatives. Glycinated bile acids and derivatives are compounds with a structure characterized by the presence of a glycine linked to a bile acid skeleton. Glycoursodeoxycholic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Glycoursodeoxycholic acid has been found throughout all human tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, glycoursodeoxycholic acid is primarily located in the membrane (predicted from logP) and cytoplasm. Glycoursodeoxycholic acid can be biosynthesized from ursodeoxycholic acid.	http://www.hmdb.ca/metabolites/HMDB0000708
Glycoursodeoxycholic acid ; HMDB00708	Glycoursodeoxycholic acid, also known as gudca or ursodeoxycholylglycine, belongs to the class of organic compounds known as glycinated bile acids and derivatives. Glycinated bile acids and derivatives are compounds with a structure characterized by the presence of a glycine linked to a bile acid skeleton. Glycoursodeoxycholic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Glycoursodeoxycholic acid has been found throughout all human tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, glycoursodeoxycholic acid is primarily located in the membrane (predicted from logP) and cytoplasm. Glycoursodeoxycholic acid can be biosynthesized from ursodeoxycholic acid.	http://www.hmdb.ca/metabolites/HMDB0000708

Glycylleucine ; HMDB0000759	Glycylleucine, also known as GL or gly-DL-leu, belongs to the class of organic compounds known as peptides. Peptides are compounds containing an amide derived from two or more amino carboxylic acid molecules (the same or different) by formation of a covalent bond from the carbonyl carbon of one to the nitrogen atom of another. Glycylleucine exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Glycylleucine has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, feces, and urine. Within the cell, glycylleucine is primarily located in the mitochondria. Glycylleucine can be biosynthesized from glycine and L-leucine.	http://www.hmdb.ca/metabolites/HMDB0000759

Guanidoacetic acid ; HMDB0000128	Guanidoacetic acid, also known as guanidinoacetate or N-amidinoglycine, belongs to the class of organic compounds known as alpha amino acids and derivatives. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon), or a derivative thereof. Guanidoacetic acid is slightly soluble (in water) and a weakly acidic compound (based on its pKa). Guanidoacetic acid has been found in human brain, liver and kidney tissues, and has also been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, guanidoacetic acid is primarily located in the cytoplasm and mitochondria. Guanidoacetic acid participates in a number of enzymatic reactions. In particular, Guanidoacetic acid and orotidylic acid can be biosynthesized from glycine and L-arginine through the action of the enzyme glycine amidinotransferase, mitochondrial. Furthermore, Guanidoacetic acid and S-adenosylhomocysteine can be converted into S-adenosylmethionine and creatine through the action of the enzyme guanidinoacetate N-methyltransferase. Furthermore, Ornithine and guanidoacetic acid can be biosynthesized from L-arginine and glycine through the action of the enzyme glycine amidinotransferase, mitochondrial. Finally, S-Adenosylmethionine and guanidoacetic acid can be converted into S-adenosylhomocysteine and creatine through its interaction with the enzyme guanidinoacetate N-methyltransferase. In humans, guanidoacetic acid is involved in the glycine and serine metabolism pathway and the arginine and proline metabolism pathway. Guanidoacetic acid is also involved in several metabolic disorders, some of which include guanidinoacetate methyltransferase deficiency (gamt deficiency), ornithine aminotransferase deficiency (oat deficiency), the hyperprolinemia	http://www.hmdb.ca/metabolites/HMDB0000128

	type I pathway, and dihydropyrimidine dehydrogenase deficiency (DHPD). Outside of the human body, guanidoacetic acid can be found in apple and loquat. This makes guanidoacetic acid a potential biomarker for the consumption of these food products. Guanidoacetic acid is a potentially toxic compound.	

Guanidoacetic acid ; HMDB00128	Guanidoacetic acid, also known as guanidinoacetate or N-amidinoglycine, belongs to the class of organic compounds known as alpha amino acids and derivatives. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon), or a derivative thereof. Guanidoacetic acid is slightly soluble (in water) and a weakly acidic compound (based on its pKa). Guanidoacetic acid has been found in human brain, liver and kidney tissues, and has also been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, guanidoacetic acid is primarily located in the cytoplasm and mitochondria. Guanidoacetic acid participates in a number of enzymatic reactions. In particular, Guanidoacetic acid and orotidylic acid can be biosynthesized from glycine and L-arginine through the action of the enzyme glycine amidinotransferase, mitochondrial. Furthermore, Guanidoacetic acid and S-adenosylhomocysteine can be converted into S-adenosylmethionine and creatine through the action of the enzyme guanidinoacetate N-methyltransferase. Furthermore, Ornithine and guanidoacetic acid can be biosynthesized from L-arginine and glycine through the action of the enzyme glycine amidinotransferase, mitochondrial. Finally, S-Adenosylmethionine and guanidoacetic acid can be converted into S-adenosylhomocysteine and creatine through its interaction with the enzyme guanidinoacetate N-methyltransferase. In humans, guanidoacetic acid is involved in the glycine and serine metabolism pathway and the arginine and proline metabolism pathway. Guanidoacetic acid is also involved in several metabolic disorders, some of which include guanidinoacetate methyltransferase deficiency (gamt deficiency), ornithine aminotransferase deficiency (oat deficiency), the hyperprolinemia	http://www.hmdb.ca/metabolites/HMDB0000128

	type I pathway, and dihydropyrimidine dehydrogenase deficiency (DHPD). Outside of the human body, guanidoacetic acid can be found in apple and loquat. This makes guanidoacetic acid a potential biomarker for the consumption of these food products. Guanidoacetic acid is a potentially toxic compound.	
Guanine ; HMDB0000132	Guanine, also known as G or mearlmaid aa, belongs to the class of organic compounds known as purines and purine derivatives. These are aromatic heterocyclic compounds containing a purine moiety, which is formed a pyrimidine-ring ring fused to an imidazole ring. Guanine exists as a solid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). Guanine has been found throughout most human tissues, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, guanine is primarily located in the myelin sheath. Guanine exists in all eukaryotes, ranging from yeast to humans. Guanine participates in a number of enzymatic reactions. In particular, Guanine and phosphoribosyl pyrophosphate can be biosynthesized from guanosine monophosphate through its interaction with the enzyme adenine phosphoribosyltransferase. In addition, Guanine and ribose 1-phosphate can be biosynthesized from guanosine; which is mediated by the enzyme purine nucleoside phosphorylase. In humans, guanine is involved in the mercaptopurine action pathway, the thioguanine action pathway, the purine metabolism pathway, and the azathioprine action pathway. Guanine is also involved in several metabolic disorders, some of which include purine nucleoside phosphorylase deficiency, the mitochondrial dna depletion syndrome pathway, the xanthinuria type II pathway, and adenosine deaminase deficiency. Outside of the human body, guanine can be found in guava. This makes guanine a potential biomarker for the consumption of this food product.	http://www.hmdb.ca/metabolites/HMDB0000132

Guanosine ; HMDB0000133	Guanosine, also known as G or 2-amino-inosine, belongs to the class of organic compounds known as purine nucleosides. Purine nucleosides are compounds comprising a purine base attached to a ribosyl or deoxyribosyl moiety. Guanosine exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Guanosine has been found in human prostate tissue, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, guanosine is primarily located in the mitochondria, lysosome and cytoplasm. Guanosine exists in all eukaryotes, ranging from yeast to humans. Guanosine participates in a number of enzymatic reactions. In particular, Guanosine can be biosynthesized from guanosine monophosphate; which is mediated by the enzyme cytosolic purine 5'-nucleotidase. In addition, Guanosine can be converted into guanine and ribose 1-phosphate through the action of the enzyme purine nucleoside phosphorylase. In humans, guanosine is involved in the purine metabolism pathway, the azathioprine action pathway, the thioguanine action pathway, and the mercaptopurine action pathway. Guanosine is also involved in several metabolic disorders, some of which include adenylosuccinate lyase deficiency, the gout or kelley-seegmiller syndrome pathway, the AICA-ribosiduria pathway, and the xanthinuria type I pathway.	http://www.hmdb.ca/metabolites/HMDB0000133

Guanosine ; HMDB00133	Guanosine, also known as G or 2-amino-inosine, belongs to the class of organic compounds known as purine nucleosides. Purine nucleosides are compounds comprising a purine base attached to a ribosyl or deoxyribosyl moiety. Guanosine exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Guanosine has been found in human prostate tissue, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, guanosine is primarily located in the mitochondria, lysosome and cytoplasm. Guanosine exists in all eukaryotes, ranging from yeast to humans. Guanosine participates in a number of enzymatic reactions. In particular, Guanosine can be biosynthesized from guanosine monophosphate; which is mediated by the enzyme cytosolic purine 5'-nucleotidase. In addition, Guanosine can be converted into guanine and ribose 1-phosphate through the action of the enzyme purine nucleoside phosphorylase. In humans, guanosine is involved in the purine metabolism pathway, the azathioprine action pathway, the thioguanine action pathway, and the mercaptopurine action pathway. Guanosine is also involved in several metabolic disorders, some of which include adenylosuccinate lyase deficiency, the gout or kelley-seegmiller syndrome pathway, the AICA-ribosiduria pathway, and the xanthinuria type I pathway.	http://www.hmdb.ca/metabolites/HMDB0000133

Guanosine diphosphate ; HMDB0001201	Guanosine diphosphate, also known as 5'-diphosphate, guanosine or GDP, belongs to the class of organic compounds known as purine ribonucleoside diphosphates. These are purine ribobucleotides with diphosphate group linked to the ribose moiety. Guanosine diphosphate is slightly soluble (in water) and a moderately acidic compound (based on its pKa). Guanosine diphosphate has been detected in multiple biofluids, such as blood and cerebrospinal fluid. Within the cell, guanosine diphosphate is primarily located in the cytoplasm, mitochondria, nucleus and golgi. Guanosine diphosphate exists in all eukaryotes, ranging from yeast to humans. Guanosine diphosphate participates in a number of enzymatic reactions. In particular, Guanosine diphosphate can be converted into guanosine triphosphate through the action of the enzyme nucleoside diphosphate kinase 6. In addition, Guanosine diphosphate can be converted into guanosine monophosphate; which is catalyzed by the enzyme ectonucleoside triphosphate diphosphohydrolase 5. In humans, guanosine diphosphate is involved in the clocinizine H1-antihistamine action pathway, the alimemazine H1-antihistamine action pathway, the aspartate metabolism pathway, and the intracellular signalling through LHCGR receptor and luteinizing hormone/choriogonadotropin pathway. Guanosine diphosphate is also involved in several metabolic disorders, some of which include the hypoacetylaspartia pathway, the gout or kelley-seegmiller syndrome pathway, adenosine deaminase deficiency, and the leigh syndrome pathway. Outside of the human body, guanosine diphosphate can be found in a number of food items such as garlic, skunk currant, carob, and japanese walnut. This makes guanosine diphosphate a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0001201

Guanosine diphosphate ; HMDB01201	Guanosine diphosphate, also known as 5'-diphosphate, guanosine or GDP, belongs to the class of organic compounds known as purine ribonucleoside diphosphates. These are purine ribobucleotides with diphosphate group linked to the ribose moiety. Guanosine diphosphate is slightly soluble (in water) and a moderately acidic compound (based on its pKa). Guanosine diphosphate has been detected in multiple biofluids, such as blood and cerebrospinal fluid. Within the cell, guanosine diphosphate is primarily located in the cytoplasm, mitochondria, nucleus and golgi. Guanosine diphosphate exists in all eukaryotes, ranging from yeast to humans. Guanosine diphosphate participates in a number of enzymatic reactions. In particular, Guanosine diphosphate can be converted into guanosine triphosphate through the action of the enzyme nucleoside diphosphate kinase 6. In addition, Guanosine diphosphate can be converted into guanosine monophosphate; which is catalyzed by the enzyme ectonucleoside triphosphate diphosphohydrolase 5. In humans, guanosine diphosphate is involved in the clocinizine H1-antihistamine action pathway, the alimemazine H1-antihistamine action pathway, the aspartate metabolism pathway, and the intracellular signalling through LHCGR receptor and luteinizing hormone/choriogonadotropin pathway. Guanosine diphosphate is also involved in several metabolic disorders, some of which include the hypoacetylaspartia pathway, the gout or kelley-seegmiller syndrome pathway, adenosine deaminase deficiency, and the leigh syndrome pathway. Outside of the human body, guanosine diphosphate can be found in a number of food items such as garlic, skunk currant, carob, and japanese walnut. This makes guanosine diphosphate a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0001201

Heme ; HMDB0003178	Heme is the color-furnishing portion of hemoglobin. It is found free in tissues and as the prosthetic group in many hemeproteins. A heme or haem is a prosthetic group that consists of an iron atom contained in the center of a large heterocyclic organic ring called a porphyrin. Not all porphyrins contain iron, but a substantial fraction of porphyrin-containing metalloproteins have heme as their prosthetic subunit; these are known as hemoproteins.	http://www.hmdb.ca/metabolites/HMDB0003178
Heptadecanoic acid ; HMDB0002259	Margaric acid, also known as 17:0 or heptadecoate, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Margaric acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Margaric acid has been found in human skeletal muscle, adipose tissue and prostate tissues, and has also been primarily detected in feces, saliva, blood, and urine. Within the cell, margaric acid is primarily located in the cytoplasm, membrane (predicted from logP) and adiposome. Margaric acid exists in all eukaryotes, ranging from yeast to humans. Margaric acid is also a parent compound for other transformation products, including but not limited to, 2-hydroxyheptadecanoic acid, (16R)-16-hydroxymargaric acid, and cholesteryl heptadecanoate.	http://www.hmdb.ca/metabolites/HMDB0002259

Heptadecanoic acid ; HMDB02259	Margaric acid, also known as 17:0 or heptadecoate, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Margaric acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Margaric acid has been found in human skeletal muscle, adipose tissue and prostate tissues, and has also been primarily detected in feces, saliva, blood, and urine. Within the cell, margaric acid is primarily located in the cytoplasm, membrane (predicted from logP) and adiposome. Margaric acid exists in all eukaryotes, ranging from yeast to humans. Margaric acid is also a parent compound for other transformation products, including but not limited to, 2-hydroxyheptadecanoic acid, (16R)-16-hydroxymargaric acid, and cholesteryl heptadecanoate.	http://www.hmdb.ca/metabolites/HMDB0002259
Heptanoylcarnitine ; HMDB0013238	3-Hydroxy-9Z-octadecenoylcarnitine belongs to the class of organic compounds known as beta hydroxy acids and derivatives. Beta hydroxy acids and derivatives are compounds containing a carboxylic acid substituted with a hydroxyl group on the C3 carbon atom. 3-Hydroxy-9Z-octadecenoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule.	http://www.hmdb.ca/metabolites/HMDB0013238
Heptanoylcarnitine ; HMDB13238	3-Hydroxy-9Z-octadecenoylcarnitine belongs to the class of organic compounds known as beta hydroxy acids and derivatives. Beta hydroxy acids and derivatives are compounds containing a carboxylic acid substituted with a hydroxyl group on the C3 carbon atom. 3-Hydroxy-9Z-octadecenoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule.	http://www.hmdb.ca/metabolites/HMDB0013238

Hexacosanoyl carnitine ; HMDB0006347	Hexacosanoyl carnitine belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, hexacosanoyl carnitine is considered to be a fatty ester lipid molecule. Hexacosanoyl carnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. Hexacosanoyl carnitine has been detected in multiple biofluids, such as urine and blood. Within the cell, hexacosanoyl carnitine is primarily located in the cytoplasm, membrane (predicted from logP) and mitochondria.	http://www.hmdb.ca/metabolites/HMDB0006347
Hexacosanoyl carnitine ; HMDB06347	Hexacosanoyl carnitine belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, hexacosanoyl carnitine is considered to be a fatty ester lipid molecule. Hexacosanoyl carnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. Hexacosanoyl carnitine has been detected in multiple biofluids, such as urine and blood. Within the cell, hexacosanoyl carnitine is primarily located in the cytoplasm, membrane (predicted from logP) and mitochondria.	http://www.hmdb.ca/metabolites/HMDB0006347

Hexadecanedioic acid ; HMDB0000672	Thapsic acid, also known as thapsate or hexadecanedioate, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Thapsic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Thapsic acid has been detected in multiple biofluids, such as feces and urine. Within the cell, thapsic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. Thapsic acid is also a parent compound for other transformation products, including but not limited to, (3S)-hydroxyhexadecanedioyl-CoA, hexadecanedioyl-CoA, and (3R)-hydroxyhexadecanedioyl-CoA. Outside of the human body, thapsic acid can be found in potato and sweet cherry. This makes thapsic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000672
Hexadecanedioic acid ; HMDB00672	Thapsic acid, also known as thapsate or hexadecanedioate, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Thapsic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Thapsic acid has been detected in multiple biofluids, such as feces and urine. Within the cell, thapsic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. Thapsic acid is also a parent compound for other transformation products, including but not limited to, (3S)-hydroxyhexadecanedioyl-CoA, hexadecanedioyl-CoA, and (3R)-hydroxyhexadecanedioyl-CoA. Outside of the human body, thapsic acid can be found in potato and sweet cherry. This makes thapsic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000672

Hexanoylcarnitine ; HMDB0000705	Hexanoylcarnitine belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, hexanoylcarnitine is considered to be a fatty ester lipid molecule. Hexanoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. Hexanoylcarnitine has been found in human prostate tissue, and has also been detected in multiple biofluids, such as feces, blood, and urine. Within the cell, hexanoylcarnitine is primarily located in the membrane (predicted from logP) and cytoplasm. Hexanoylcarnitine has been linked to the inborn metabolic disorders including glutaric aciduria II.	http://www.hmdb.ca/metabolites/HMDB0000705

Hexanoylcarnitine ; HMDB0000756	Hexanoylcarnitine (CAS: 6418-78-6), also known as caproylcarnitine, is an acylcarnitine. Numerous disorders have been described that lead to disturbances in energy production and in intermediary metabolism in the organism which are characterized by the production and excretion of unusual acylcarnitines. A mutation in the gene coding for carnitine-acylcarnitine translocase or the OCTN2 transporter aetiologically causes a carnitine deficiency that results in poor intestinal absorption of dietary L-carnitine, its impaired reabsorption by the kidney and, consequently, in increased urinary loss of L-carnitine. Determination of the qualitative pattern of acylcarnitines can be of diagnostic and therapeutic importance. The betaine structure of carnitine requires special analytical procedures for recording. The ionic nature of L-carnitine causes a high water solubility which decreases with increasing chain length of the ester group in the acylcarnitines. Therefore, the distribution of L-carnitine and acylcarnitines in various organs is defined by their function and their physicochemical properties as well. High-performance liquid chromatography (HPLC) permits screening for free and total carnitine, as well as complete quantitative acylcarnitine determination, including the long-chain acylcarnitine profile (PMID: 17508264, Monatshefte fuer Chemie (2005), 136(8), 1279-1291., Int J Mass Spectrom. 1999;188:39-52.). Hexanoylcarnitine is a medium-chain acylcarnitine present in the urine of patients with medium-chain acyl-CoA dehydrogenase deficiency (PMID: 1635814). Hexanoylcarnitine is also found to be associated with celiac disease and glutaric aciduria II which are both inborn errors of metabolism.	http://www.hmdb.ca/metabolites/HMDB0000756

Hexanoylcarnitine ; HMDB00705	Hexanoylcarnitine belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, hexanoylcarnitine is considered to be a fatty ester lipid molecule. Hexanoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. Hexanoylcarnitine has been found in human prostate tissue, and has also been detected in multiple biofluids, such as feces, blood, and urine. Within the cell, hexanoylcarnitine is primarily located in the membrane (predicted from logP) and cytoplasm. Hexanoylcarnitine has been linked to the inborn metabolic disorders including glutaric aciduria II.	http://www.hmdb.ca/metabolites/HMDB0000705
Hexanoylglycine ; HMDB0000701	Hexanoylglycine, also known as N-caproylglycine, belongs to the class of organic compounds known as n-acyl-alpha amino acids. N-acyl-alpha amino acids are compounds containing an alpha amino acid which bears an acyl group at its terminal nitrogen atom. Hexanoylglycine is slightly soluble (in water) and a weakly acidic compound (based on its pKa). Hexanoylglycine has been detected in multiple biofluids, such as urine and blood. Hexanoylglycine has been linked to the inborn metabolic disorders including medium chain acyl-CoA dehydrogenase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000701

Hippuric acid ; HMDB0000714	Hippuric acid, also known as N-benzoylglycine or hippurate, belongs to the class of organic compounds known as hippuric acids. Hippuric acids are compounds containing hippuric acid, which consists of a of a benzoyl group linked to the N-terminal of a glycine. Hippuric acid exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Hippuric acid has been found in human prostate, liver and kidney tissues, and has also been detected in most biofluids, including urine, blood, cerebrospinal fluid, and feces. Within the cell, hippuric acid is primarily located in the cytoplasm. Hippuric acid is also a parent compound for other transformation products, including but not limited to, p-hydroxyhippuric acid, alpha-hydroxyhippuric acid, and m-methylhippuric acid. Outside of the human body, hippuric acid can be found in american cranberry and avocado. This makes hippuric acid a potential biomarker for the consumption of these food products. Hippuric acid is a potentially toxic compound. Hippuric acid has been found to be associated with several diseases known as paraquat poisoning, schizophrenia, and lung cancer; hippuric acid has also been linked to several inborn metabolic disorders including phenylketonuria and propionic acidemia.	http://www.hmdb.ca/metabolites/HMDB0000714

Hippuric acid ; HMDB00714	Hippuric acid, also known as N-benzoylglycine or hippurate, belongs to the class of organic compounds known as hippuric acids. Hippuric acids are compounds containing hippuric acid, which consists of a of a benzoyl group linked to the N-terminal of a glycine. Hippuric acid exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Hippuric acid has been found in human prostate, liver and kidney tissues, and has also been detected in most biofluids, including urine, blood, cerebrospinal fluid, and feces. Within the cell, hippuric acid is primarily located in the cytoplasm. Hippuric acid is also a parent compound for other transformation products, including but not limited to, p-hydroxyhippuric acid, alpha-hydroxyhippuric acid, and m-methylhippuric acid. Outside of the human body, hippuric acid can be found in american cranberry and avocado. This makes hippuric acid a potential biomarker for the consumption of these food products. Hippuric acid is a potentially toxic compound. Hippuric acid has been found to be associated with several diseases known as paraquat poisoning, schizophrenia, and lung cancer; hippuric acid has also been linked to several inborn metabolic disorders including phenylketonuria and propionic acidemia.	http://www.hmdb.ca/metabolites/HMDB0000714

Homo-L-arginine ; HMDB0000670	Homo-L-arginine, also known as n6-amidino-lysine, belongs to the class of organic compounds known as l-alpha-amino acids. These are alpha amino acids which have the L-configuration of the alpha-carbon atom. Homo-L-arginine exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). Homo-L-arginine has been found in human intestine and testicle tissues, and has also been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid. Within the cell, homo-L-arginine is primarily located in the cytoplasm. Homo-L-arginine has been found to be associated with the diseases known as cirrhosis; homo-l-arginine has also been linked to the inborn metabolic disorders including hyperargininemia.	http://www.hmdb.ca/metabolites/HMDB0000670
Homo-L-arginine ; HMDB00670	Homo-L-arginine, also known as n6-amidino-lysine, belongs to the class of organic compounds known as l-alpha-amino acids. These are alpha amino acids which have the L-configuration of the alpha-carbon atom. Homo-L-arginine exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). Homo-L-arginine has been found in human intestine and testicle tissues, and has also been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid. Within the cell, homo-L-arginine is primarily located in the cytoplasm. Homo-L-arginine has been found to be associated with the diseases known as cirrhosis; homo-l-arginine has also been linked to the inborn metabolic disorders including hyperargininemia.	http://www.hmdb.ca/metabolites/HMDB0000670
Homocitrulline ; HMDB0000679	Homocitrulline belongs to the class of organic compounds known as l-alpha-amino acids. These are alpha amino acids which have the L-configuration of the alpha-carbon atom. Homocitrulline exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Homocitrulline has been detected in multiple biofluids, such as urine and blood. Within the cell, homocitrulline is primarily located in the cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000679

Homocitrulline ; HMDB00679	Homocitrulline belongs to the class of organic compounds known as l-alpha-amino acids. These are alpha amino acids which have the L-configuration of the alpha-carbon atom. Homocitrulline exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Homocitrulline has been detected in multiple biofluids, such as urine and blood. Within the cell, homocitrulline is primarily located in the cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000679

Homocysteine ; HMDB0000742	Homocysteine, also known as Hcy or homo-cys, belongs to the class of organic compounds known as alpha amino acids. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon). Homocysteine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Homocysteine has been found throughout most human tissues, and has also been primarily detected in saliva, urine, blood, and cerebrospinal fluid. Within the cell, homocysteine is primarily located in the cytoplasm. Homocysteine exists in all eukaryotes, ranging from yeast to humans. Homocysteine participates in a number of enzymatic reactions. In particular, Betaine and homocysteine can be converted into dimethylglycine and L-methionine through the action of the enzyme betaine--homocysteine S-methyltransferase 1. Furthermore, L-Serine and homocysteine can be converted into L-cystathionine; which is mediated by the enzyme cystathionine beta-synthase. Furthermore, Betaine and homocysteine can be converted into dimethylglycine and L-methionine through its interaction with the enzyme betaine--homocysteine S-methyltransferase 1. Furthermore, Homocysteine and 5-methyltetrahydrofolic acid can be converted into L-methionine and tetrahydrofolic acid through its interaction with the enzyme methionine synthase. Furthermore, 5-Methyltetrahydrofolic acid and homocysteine can be converted into tetrahydrofolic acid and L-methionine through the action of the enzyme methionine synthase. Finally, Homocysteine and L-serine can be converted into L-cystathionine through its interaction with the enzyme cystathionine beta-synthase. In humans, homocysteine is involved in the sarcosine oncometabolite pathway, the methionine metabolism pathway, the betaine metabolism pathway,	http://www.hmdb.ca/metabolites/HMDB0000742

	and catecholamine biosynthesis pathway. Homocysteine is also involved in several metabolic disorders, some of which include the NON ketotic hyperglycinemia pathway, methylenetetrahydrofolate reductase deficiency (MTHFRD), the homocystinuria-megaloblastic anemia due to defect in cobalamin metabolism, CBLG complementation type pathway, and the hypermethioninemia pathway. Outside of the human body, homocysteine can be found in a number of food items such as acerola, walnut, chinese bayberry, and passion fruit. This makes homocysteine a potential biomarker for the consumption of these food products. Homocysteine is a potentially toxic compound. Homocysteine has been found to be associated with several diseases known as continuous ambulatory peritoneal dialysis, alzheimer's disease, multiple sclerosis, and peripheral neuropathy; homocysteine has also been linked to the inborn metabolic disorders including homocystinuria.	

Homocysteine ; HMDB00742	Homocysteine, also known as Hcy or homo-cys, belongs to the class of organic compounds known as alpha amino acids. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon). Homocysteine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Homocysteine has been found throughout most human tissues, and has also been primarily detected in saliva, urine, blood, and cerebrospinal fluid. Within the cell, homocysteine is primarily located in the cytoplasm. Homocysteine exists in all eukaryotes, ranging from yeast to humans. Homocysteine participates in a number of enzymatic reactions. In particular, Betaine and homocysteine can be converted into dimethylglycine and L-methionine through the action of the enzyme betaine--homocysteine S-methyltransferase 1. Furthermore, L-Serine and homocysteine can be converted into L-cystathionine; which is mediated by the enzyme cystathionine beta-synthase. Furthermore, Betaine and homocysteine can be converted into dimethylglycine and L-methionine through its interaction with the enzyme betaine--homocysteine S-methyltransferase 1. Furthermore, Homocysteine and 5-methyltetrahydrofolic acid can be converted into L-methionine and tetrahydrofolic acid through its interaction with the enzyme methionine synthase. Furthermore, 5-Methyltetrahydrofolic acid and homocysteine can be converted into tetrahydrofolic acid and L-methionine through the action of the enzyme methionine synthase. Finally, Homocysteine and L-serine can be converted into L-cystathionine through its interaction with the enzyme cystathionine beta-synthase. In humans, homocysteine is involved in the sarcosine oncometabolite pathway, the methionine metabolism pathway, the betaine metabolism pathway,	http://www.hmdb.ca/metabolites/HMDB0000742

	and catecholamine biosynthesis pathway. Homocysteine is also involved in several metabolic disorders, some of which include the NON ketotic hyperglycinemia pathway, methylenetetrahydrofolate reductase deficiency (MTHFRD), the homocystinuria-megaloblastic anemia due to defect in cobalamin metabolism, CBLG complementation type pathway, and the hypermethioninemia pathway. Outside of the human body, homocysteine can be found in a number of food items such as acerola, walnut, chinese bayberry, and passion fruit. This makes homocysteine a potential biomarker for the consumption of these food products. Homocysteine is a potentially toxic compound. Homocysteine has been found to be associated with several diseases known as continuous ambulatory peritoneal dialysis, alzheimer's disease, multiple sclerosis, and peripheral neuropathy; homocysteine has also been linked to the inborn metabolic disorders including homocystinuria.	

Homovanillic acid ; HMDB0000118	Homovanillic acid, also known as vanillacetate or homovanillate, belongs to the class of organic compounds known as methoxyphenols. Methoxyphenols are compounds containing a methoxy group attached to the benzene ring of a phenol moiety. Homovanillic acid exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Homovanillic acid has been found in human brain, spinal cord and kidney tissues, and has also been detected in most biofluids, including blood, urine, saliva, and feces. Within the cell, homovanillic acid is primarily located in the cytoplasm. Homovanillic acid exists in all eukaryotes, ranging from yeast to humans. Homovanillic acid participates in a number of enzymatic reactions. In particular, Homovanillic acid can be biosynthesized from homovanillin; which is catalyzed by the enzyme aldehyde dehydrogenase, dimeric nadp-preferring. In addition, Homovanillic acid and pyrocatechol can be biosynthesized from 3,4-dihydroxybenzeneacetic acid and guaiacol through its interaction with the enzyme catechol O-methyltransferase. In humans, homovanillic acid is involved in the disulfiram action pathway and the tyrosine metabolism pathway. Homovanillic acid is also involved in several metabolic disorders, some of which include the tyrosinemia type I pathway, tyrosinemia, transient, OF the newborn pathway, dopamine beta-hydroxylase deficiency, and the hawkinsinuria pathway. Outside of the human body, homovanillic acid can be found in avocado, beer, and olive. This makes homovanillic acid a potential biomarker for the consumption of these food products. Homovanillic acid has been found to be associated with several diseases known as narcolepsy, major depressive disorder, and schizophrenia; homovanillic acid has also been linked to several inborn metabolic disorders including celiac disease and growth hormone deficiency.	http://www.hmdb.ca/metabolites/HMDB0000118

Homovanillic acid ; HMDB00118	Homovanillic acid, also known as vanillacetate or homovanillate, belongs to the class of organic compounds known as methoxyphenols. Methoxyphenols are compounds containing a methoxy group attached to the benzene ring of a phenol moiety. Homovanillic acid exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Homovanillic acid has been found in human brain, spinal cord and kidney tissues, and has also been detected in most biofluids, including blood, urine, saliva, and feces. Within the cell, homovanillic acid is primarily located in the cytoplasm. Homovanillic acid exists in all eukaryotes, ranging from yeast to humans. Homovanillic acid participates in a number of enzymatic reactions. In particular, Homovanillic acid can be biosynthesized from homovanillin; which is catalyzed by the enzyme aldehyde dehydrogenase, dimeric nadp-preferring. In addition, Homovanillic acid and pyrocatechol can be biosynthesized from 3,4-dihydroxybenzeneacetic acid and guaiacol through its interaction with the enzyme catechol O-methyltransferase. In humans, homovanillic acid is involved in the disulfiram action pathway and the tyrosine metabolism pathway. Homovanillic acid is also involved in several metabolic disorders, some of which include the tyrosinemia type I pathway, tyrosinemia, transient, OF the newborn pathway, dopamine beta-hydroxylase deficiency, and the hawkinsinuria pathway. Outside of the human body, homovanillic acid can be found in avocado, beer, and olive. This makes homovanillic acid a potential biomarker for the consumption of these food products. Homovanillic acid has been found to be associated with several diseases known as narcolepsy, major depressive disorder, and schizophrenia; homovanillic acid has also been linked to several inborn metabolic disorders including celiac disease and growth hormone deficiency.	http://www.hmdb.ca/metabolites/HMDB0000118

Hydantoin-5-propionic acid ; HMDB0001212	Hydantoin-5-propionic acid, also known as hydantoin-propionate, belongs to the class of organic compounds known as hydantoins. These are heterocyclic compounds containing an imidazolidine substituted by ketone group at positions 2 and 4. Hydantoin-5-propionic acid is slightly soluble (in water) and a weakly acidic compound (based on its pKa). Within the cell, hydantoin-5-propionic acid is primarily located in the cytoplasm. Hydantoin-5-propionic acid can be converted into hydantoin.	http://www.hmdb.ca/metabolites/HMDB0001212
Hydrochlorothiazide ; HMDB0001928	Hydrochlorothiazide, also known as microzide or hydrodiuril, belongs to the class of organic compounds known as 1,2,4-benzothiadiazine-1,1-dioxides. These are aromatic heterocyclic compounds containing a 1,2,4-benzothiadiazine ring system with two S=O bonds at the 1-position. Hydrochlorothiazide is a drug which is used for the treatment of high blood pressure and management of edema. Hydrochlorothiazide exists as a solid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). Hydrochlorothiazide has been found in human adipose tissue and kidney tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, hydrochlorothiazide is primarily located in the cytoplasm. Hydrochlorothiazide can be converted into hydrochlorothiazide through the action of the enzyme solute carrier family 22 member 6. In humans, hydrochlorothiazide is involved in the metabolic disorder called the hydrochlorothiazide action pathway. Hydrochlorothiazide is formally rated as a possible carcinogen (by IARC 2B) and is also a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001928

Hydrochlorothiazide ; HMDB01928	Hydrochlorothiazide, also known as microzide or hydrodiuril, belongs to the class of organic compounds known as 1,2,4-benzothiadiazine-1,1-dioxides. These are aromatic heterocyclic compounds containing a 1,2,4-benzothiadiazine ring system with two S=O bonds at the 1-position. Hydrochlorothiazide is a drug which is used for the treatment of high blood pressure and management of edema. Hydrochlorothiazide exists as a solid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). Hydrochlorothiazide has been found in human adipose tissue and kidney tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, hydrochlorothiazide is primarily located in the cytoplasm. Hydrochlorothiazide can be converted into hydrochlorothiazide through the action of the enzyme solute carrier family 22 member 6. In humans, hydrochlorothiazide is involved in the metabolic disorder called the hydrochlorothiazide action pathway. Hydrochlorothiazide is formally rated as a possible carcinogen (by IARC 2B) and is also a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001928

Hydrocinnamic acid ; HMDB0000764	Hydrocinnamic acid, also known as phenylpropanoate or dihydrocinnamate, belongs to the class of organic compounds known as phenylpropanoic acids. Phenylpropanoic acids are compounds with a structure containing a benzene ring conjugated to a propanoic acid. Hydrocinnamic acid exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Hydrocinnamic acid has been found in human liver and kidney tissues, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, hydrocinnamic acid is primarily located in the cytoplasm. Hydrocinnamic acid participates in a number of enzymatic reactions. In particular, hydrocinnamic acid can be biosynthesized from propionic acid. Hydrocinnamic acid is also a parent compound for other transformation products, including but not limited to, 3-(3,4-dihydroxyphenyl)propanoic acid, 3-phenylpropionate ester, and 3-hydroxy-3-phenylpropionic acid. Hydrocinnamic acid is a sweet, balsamic, and cinnamon tasting compound that can be found in a number of food items such as sourdock, common wheat, cashew nut, and nuts. This makes hydrocinnamic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000764

Hydrocinnamic acid ; HMDB00764	Hydrocinnamic acid, also known as phenylpropanoate or dihydrocinnamate, belongs to the class of organic compounds known as phenylpropanoic acids. Phenylpropanoic acids are compounds with a structure containing a benzene ring conjugated to a propanoic acid. Hydrocinnamic acid exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Hydrocinnamic acid has been found in human liver and kidney tissues, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, hydrocinnamic acid is primarily located in the cytoplasm. Hydrocinnamic acid participates in a number of enzymatic reactions. In particular, hydrocinnamic acid can be biosynthesized from propionic acid. Hydrocinnamic acid is also a parent compound for other transformation products, including but not limited to, 3-(3,4-dihydroxyphenyl)propanoic acid, 3-phenylpropionate ester, and 3-hydroxy-3-phenylpropionic acid. Hydrocinnamic acid is a sweet, balsamic, and cinnamon tasting compound that can be found in a number of food items such as sourdock, common wheat, cashew nut, and nuts. This makes hydrocinnamic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000764
Hydroquinone sulfate ; HMDB0240263	Hydroquinone sulfate, also known as quinol monosulfate or quinol sulfuric acid, belongs to the class of organic compounds known as phenylsulfates. Phenylsulfates are compounds containing a sulfuric acid group conjugated to a phenyl group. Hydroquinone sulfate is slightly soluble (in water) and an extremely strong acidic compound (based on its pKa). Hydroquinone sulfate can be biosynthesized from hydroquinone.	http://www.hmdb.ca/metabolites/HMDB0240263

Hydroxybutyrylcarnitine ; HMDB0013127	3-Hydroxy-9Z-octadecenoylcarnitine belongs to the class of organic compounds known as beta hydroxy acids and derivatives. Beta hydroxy acids and derivatives are compounds containing a carboxylic acid substituted with a hydroxyl group on the C3 carbon atom. 3-Hydroxy-9Z-octadecenoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule.	http://www.hmdb.ca/metabolites/HMDB0013127
Hydroxybutyrylcarnitine ; HMDB13127	3-Hydroxy-9Z-octadecenoylcarnitine belongs to the class of organic compounds known as beta hydroxy acids and derivatives. Beta hydroxy acids and derivatives are compounds containing a carboxylic acid substituted with a hydroxyl group on the C3 carbon atom. 3-Hydroxy-9Z-octadecenoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule.	http://www.hmdb.ca/metabolites/HMDB0013127
Hydroxycotinine ; HMDB0001390	Hydroxycotinine belongs to the class of organic compounds known as pyrrolidinylpyridines. Pyrrolidinylpyridines are compounds containing a pyrrolidinylpyridine ring system, which consists of a pyrrolidine ring linked to a pyridine ring. Hydroxycotinine is soluble (in water) and a very weakly acidic compound (based on its pKa). Hydroxycotinine has been found in human liver and kidney tissues, and has also been detected in multiple biofluids, such as urine, saliva, and blood. Within the cell, hydroxycotinine is primarily located in the cytoplasm. Hydroxycotinine can be biosynthesized from cotinine through its interaction with the enzyme cytochrome P450 2A6. In humans, hydroxycotinine is involved in the nicotine action pathway and the nicotine metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0001390

Hydroxycotinine ; HMDB01390	Hydroxycotinine belongs to the class of organic compounds known as pyrrolidinylpyridines. Pyrrolidinylpyridines are compounds containing a pyrrolidinylpyridine ring system, which consists of a pyrrolidine ring linked to a pyridine ring. Hydroxycotinine is soluble (in water) and a very weakly acidic compound (based on its pKa). Hydroxycotinine has been found in human liver and kidney tissues, and has also been detected in multiple biofluids, such as urine, saliva, and blood. Within the cell, hydroxycotinine is primarily located in the cytoplasm. Hydroxycotinine can be biosynthesized from cotinine through its interaction with the enzyme cytochrome P450 2A6. In humans, hydroxycotinine is involved in the nicotine action pathway and the nicotine metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0001390
Hydroxykynurenine ; HMDB0000732	Hydroxykynurenine, also known as oh-kynurenine, belongs to the class of organic compounds known as alkyl-phenylketones. These are aromatic compounds containing a ketone substituted by one alkyl group, and a phenyl group. Hydroxykynurenine exists as a solid, slightly soluble (in water), and an extremely strong acidic compound (based on its pKa). Hydroxykynurenine has been found in human brain tissue, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, hydroxykynurenine is primarily located in the cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000732

Hydroxyoctanoic acid ; HMDB0000711	2-Hydroxy caprylic acid, also known as a-hydroxyoctanoate or alpha-hydroxyoctanoic acid, belongs to the class of organic compounds known as medium-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 4 and 12 carbon atoms. 2-Hydroxy caprylic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). 2-Hydroxy caprylic acid has been detected in multiple biofluids, such as feces, saliva, and urine. Within the cell, 2-hydroxy caprylic acid is primarily located in the cytoplasm and adiposome. 2-Hydroxy caprylic acid participates in a number of enzymatic reactions. In particular, 2-hydroxy caprylic acid can be biosynthesized from octanoic acid. 2-Hydroxy caprylic acid can also be converted into 2-hydroxyoctanoyl-CoA.	http://www.hmdb.ca/metabolites/HMDB0000711
Hydroxyoctanoic acid ; HMDB00711	2-Hydroxy caprylic acid, also known as a-hydroxyoctanoate or alpha-hydroxyoctanoic acid, belongs to the class of organic compounds known as medium-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 4 and 12 carbon atoms. 2-Hydroxy caprylic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). 2-Hydroxy caprylic acid has been detected in multiple biofluids, such as feces, saliva, and urine. Within the cell, 2-hydroxy caprylic acid is primarily located in the cytoplasm and adiposome. 2-Hydroxy caprylic acid participates in a number of enzymatic reactions. In particular, 2-hydroxy caprylic acid can be biosynthesized from octanoic acid. 2-Hydroxy caprylic acid can also be converted into 2-hydroxyoctanoyl-CoA.	http://www.hmdb.ca/metabolites/HMDB0000711

Hydroxyphenyllactic acid ; HMDB0000755	3-(4-Hydroxyphenyl)lactic acid, also known as 4-hydroxyphenyllactate or hpla, belongs to the class of organic compounds known as phenylpropanoic acids. Phenylpropanoic acids are compounds with a structure containing a benzene ring conjugated to a propanoic acid. 3-(4-Hydroxyphenyl)lactic acid is slightly soluble (in water) and a weakly acidic compound (based on its pKa). 3-(4-Hydroxyphenyl)lactic acid has been found in human epidermis and prostate tissues, and has also been detected in most biofluids, including cerebrospinal fluid, urine, feces, and blood. Within the cell, 3-(4-hydroxyphenyl)lactic acid is primarily located in the mitochondria. 3-(4-Hydroxyphenyl)lactic acid exists in all eukaryotes, ranging from yeast to humans. Outside of the human body, 3-(4-hydroxyphenyl)lactic acid can be found in cereals and cereal products. This makes 3-(4-hydroxyphenyl)lactic acid a potential biomarker for the consumption of this food product. 3-(4-Hydroxyphenyl)lactic acid has been found to be associated with the diseases known as supradiaphragmatic malignancy; 3-(4-hydroxyphenyl)lactic acid has also been linked to the inborn metabolic disorders including phenylketonuria.	http://www.hmdb.ca/metabolites/HMDB0000755

Hyodeoxycholic acid ; HMDB0000733	Hyodeoxycholic acid, also known as hyodeoxycholate or nahdc compound, belongs to the class of organic compounds known as dihydroxy bile acids, alcohols and derivatives. Dihydroxy bile acids, alcohols and derivatives are compounds containing or derived from a bile acid or alcohol, and which bears exactly two carboxylic acid groups. Hyodeoxycholic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Hyodeoxycholic acid has been found throughout all human tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, hyodeoxycholic acid is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000733
Hyodeoxycholic acid ; HMDB00733	Hyodeoxycholic acid, also known as hyodeoxycholate or nahdc compound, belongs to the class of organic compounds known as dihydroxy bile acids, alcohols and derivatives. Dihydroxy bile acids, alcohols and derivatives are compounds containing or derived from a bile acid or alcohol, and which bears exactly two carboxylic acid groups. Hyodeoxycholic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Hyodeoxycholic acid has been found throughout all human tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, hyodeoxycholic acid is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000733

Hypotaurine ; HMDB0000965	Hypotaurine belongs to the class of organic compounds known as sulfinic acids. Sulfinic acids are compounds containing a sulfinic acid functional group, with the general structure RS(=O)OH (R = organyl, not H). Hypotaurine is soluble (in water) and an extremely strong acidic compound (based on its pKa). Hypotaurine has been found in human prostate tissue, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, hypotaurine is primarily located in the cytoplasm. Hypotaurine exists in all eukaryotes, ranging from yeast to humans. Hypotaurine participates in a number of enzymatic reactions. In particular, Hypotaurine can be biosynthesized from cysteamine; which is mediated by the enzyme 2-aminoethanethiol dioxygenase. Furthermore, Hypotaurine can be biosynthesized from 3-sulfinoalanine; which is catalyzed by the enzyme cysteine sulfinic acid decarboxylase. Finally, Hypotaurine can be biosynthesized from 3-sulfinoalanine; which is mediated by the enzyme glutamate decarboxylase. In humans, hypotaurine is involved in the taurine and hypotaurine metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0000965

Hypotaurine ; HMDB00965	Hypotaurine belongs to the class of organic compounds known as sulfinic acids. Sulfinic acids are compounds containing a sulfinic acid functional group, with the general structure RS(=O)OH (R = organyl, not H). Hypotaurine is soluble (in water) and an extremely strong acidic compound (based on its pKa). Hypotaurine has been found in human prostate tissue, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, hypotaurine is primarily located in the cytoplasm. Hypotaurine exists in all eukaryotes, ranging from yeast to humans. Hypotaurine participates in a number of enzymatic reactions. In particular, Hypotaurine can be biosynthesized from cysteamine; which is mediated by the enzyme 2-aminoethanethiol dioxygenase. Furthermore, Hypotaurine can be biosynthesized from 3-sulfinoalanine; which is catalyzed by the enzyme cysteine sulfinic acid decarboxylase. Finally, Hypotaurine can be biosynthesized from 3-sulfinoalanine; which is mediated by the enzyme glutamate decarboxylase. In humans, hypotaurine is involved in the taurine and hypotaurine metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0000965

Hypoxanthine ; HMDB0000157	Hypoxanthine, also known as purine-6-ol or Hyp, belongs to the class of organic compounds known as hypoxanthines. Hypoxanthines are compounds containing the purine derivative 1H-purin-6(9H)-one. Purine is a bicyclic aromatic compound made up of a pyrimidine ring fused to an imidazole ring. Hypoxanthine exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Hypoxanthine has been found throughout most human tissues, and has also been detected in most biofluids, including urine, cerebrospinal fluid, feces, and saliva. Within the cell, hypoxanthine is primarily located in the cytoplasm, lysosome and peroxisome. Hypoxanthine exists in all eukaryotes, ranging from yeast to humans. Hypoxanthine participates in a number of enzymatic reactions. In particular, Hypoxanthine and ribose 1-phosphate can be biosynthesized from inosine through its interaction with the enzyme purine nucleoside phosphorylase. In addition, Hypoxanthine and phosphoribosyl pyrophosphate can be biosynthesized from inosinic acid; which is mediated by the enzyme hypoxanthine-guanine phosphoribosyltransferase. In humans, hypoxanthine is involved in the azathioprine action pathway, the mercaptopurine action pathway, the thioguanine action pathway, and the purine metabolism pathway. Hypoxanthine is also involved in several metabolic disorders, some of which include adenylosuccinate lyase deficiency, myoadenylate deaminase deficiency, adenine phosphoribosyltransferase deficiency (aprt), and molybdenum cofactor deficiency. Hypoxanthine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000157

Hypoxanthine ; HMDB00157	Hypoxanthine, also known as purine-6-ol or Hyp, belongs to the class of organic compounds known as hypoxanthines. Hypoxanthines are compounds containing the purine derivative 1H-purin-6(9H)-one. Purine is a bicyclic aromatic compound made up of a pyrimidine ring fused to an imidazole ring. Hypoxanthine exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Hypoxanthine has been found throughout most human tissues, and has also been detected in most biofluids, including urine, cerebrospinal fluid, feces, and saliva. Within the cell, hypoxanthine is primarily located in the cytoplasm, lysosome and peroxisome. Hypoxanthine exists in all eukaryotes, ranging from yeast to humans. Hypoxanthine participates in a number of enzymatic reactions. In particular, Hypoxanthine and ribose 1-phosphate can be biosynthesized from inosine through its interaction with the enzyme purine nucleoside phosphorylase. In addition, Hypoxanthine and phosphoribosyl pyrophosphate can be biosynthesized from inosinic acid; which is mediated by the enzyme hypoxanthine-guanine phosphoribosyltransferase. In humans, hypoxanthine is involved in the azathioprine action pathway, the mercaptopurine action pathway, the thioguanine action pathway, and the purine metabolism pathway. Hypoxanthine is also involved in several metabolic disorders, some of which include adenylosuccinate lyase deficiency, myoadenylate deaminase deficiency, adenine phosphoribosyltransferase deficiency (aprt), and molybdenum cofactor deficiency. Hypoxanthine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000157
Ibuprofen ; HMDB0001925		http://www.hmdb.ca/metabolites/HMDB0001925
Ibuprofen ; HMDB01925		http://www.hmdb.ca/metabolites/HMDB0001925

Imidazoleacetic acid ; HMDB0002024	Imidazoleacetic acid, also known as 4(5)-imidazoleacetate or imac, belongs to the class of organic compounds known as imidazolyl carboxylic acids and derivatives. These are organic compounds containing a carboxylic acid chain (of at least 2 carbon atoms) linked to an imidazole ring. Imidazoleacetic acid is soluble (in water) and a weakly acidic compound (based on its pKa). Imidazoleacetic acid has been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, imidazoleacetic acid is primarily located in the cytoplasm and mitochondria. Imidazoleacetic acid can be biosynthesized from imidazole-4-acetaldehyde through the action of the enzyme aldehyde dehydrogenase, mitochondrial. In humans, imidazoleacetic acid is involved in the histidine metabolism pathway. Imidazoleacetic acid is also involved in the metabolic disorder called the histidinemia pathway. Outside of the human body, imidazoleacetic acid can be found in a number of food items such as mulberry, herbs and spices, quince, and cloud ear fungus. This makes imidazoleacetic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0002024

Imidazoleacetic acid ; HMDB02024	Imidazoleacetic acid, also known as 4(5)-imidazoleacetate or imac, belongs to the class of organic compounds known as imidazolyl carboxylic acids and derivatives. These are organic compounds containing a carboxylic acid chain (of at least 2 carbon atoms) linked to an imidazole ring. Imidazoleacetic acid is soluble (in water) and a weakly acidic compound (based on its pKa). Imidazoleacetic acid has been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, imidazoleacetic acid is primarily located in the cytoplasm and mitochondria. Imidazoleacetic acid can be biosynthesized from imidazole-4-acetaldehyde through the action of the enzyme aldehyde dehydrogenase, mitochondrial. In humans, imidazoleacetic acid is involved in the histidine metabolism pathway. Imidazoleacetic acid is also involved in the metabolic disorder called the histidinemia pathway. Outside of the human body, imidazoleacetic acid can be found in a number of food items such as mulberry, herbs and spices, quince, and cloud ear fungus. This makes imidazoleacetic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0002024
Imidazolelactic acid ; HMDB0002320	Imidazolelactic acid, also known as 1-imidazolelactate, belongs to the class of organic compounds known as imidazolyl carboxylic acids and derivatives. These are organic compounds containing a carboxylic acid chain (of at least 2 carbon atoms) linked to an imidazole ring. Imidazolelactic acid is soluble (in water) and a weakly acidic compound (based on its pKa). Imidazolelactic acid has been found in human prostate tissue, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, imidazolelactic acid is primarily located in the cytoplasm. Imidazolelactic acid can be biosynthesized from rac-lactic acid.	http://www.hmdb.ca/metabolites/HMDB0002320

Imidazolelactic acid ; HMDB02320	Imidazolelactic acid, also known as 1-imidazolelactate, belongs to the class of organic compounds known as imidazolyl carboxylic acids and derivatives. These are organic compounds containing a carboxylic acid chain (of at least 2 carbon atoms) linked to an imidazole ring. Imidazolelactic acid is soluble (in water) and a weakly acidic compound (based on its pKa). Imidazolelactic acid has been found in human prostate tissue, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, imidazolelactic acid is primarily located in the cytoplasm. Imidazolelactic acid can be biosynthesized from rac-lactic acid.	http://www.hmdb.ca/metabolites/HMDB0002320
Imidazolepropionic acid ; HMDB0002271	Imidazolepropionic acid, also known as deaminohistidine or 4-imidazolylpropionate, belongs to the class of organic compounds known as imidazolyl carboxylic acids and derivatives. These are organic compounds containing a carboxylic acid chain (of at least 2 carbon atoms) linked to an imidazole ring. Imidazolepropionic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Imidazolepropionic acid has been detected in multiple biofluids, such as feces and blood. Imidazolepropionic acid can be biosynthesized from propionic acid.	http://www.hmdb.ca/metabolites/HMDB0002271
Imidazolepropionic acid ; HMDB02271	Imidazolepropionic acid, also known as deaminohistidine or 4-imidazolylpropionate, belongs to the class of organic compounds known as imidazolyl carboxylic acids and derivatives. These are organic compounds containing a carboxylic acid chain (of at least 2 carbon atoms) linked to an imidazole ring. Imidazolepropionic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Imidazolepropionic acid has been detected in multiple biofluids, such as feces and blood. Imidazolepropionic acid can be biosynthesized from propionic acid.	http://www.hmdb.ca/metabolites/HMDB0002271

Indole-3-carboxylic acid ; HMDB0003320	Indole-3-carboxylic acid, also known as 3-indolecarboxylate or 3-indoleformate, belongs to the class of organic compounds known as indolecarboxylic acids and derivatives. Indolecarboxylic acids and derivatives are compounds containing a carboxylic acid group (or a derivative thereof) linked to an indole. Indole-3-carboxylic acid exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Indole-3-carboxylic acid has been primarily detected in feces. Indole-3-carboxylic acid is also a parent compound for other transformation products, including but not limited to, 4-O-(1H-indol-3-ylcarbonyl)ascaroside, 3-indole carboxylic acid glucuronide, and tropisetron. Outside of the human body, indole-3-carboxylic acid can be found in a number of food items such as wakame, pomes, cucumber, and common beet. This makes indole-3-carboxylic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0003320
Indole-3-methyl acetate ; HMDB0029738	Indole-3-methyl acetate, also known as methyl 3-indolylacetate or methyl b-indoleacetic acid, belongs to the class of organic compounds known as indole-3-acetic acid derivatives. Indole-3-acetic acid derivatives are compounds containing an acetic acid (or a derivative) linked to the C3 carbon atom of an indole. Indole-3-methyl acetate exists as a solid, slightly soluble (in water), and an extremely weak acidic (essentially neutral) compound (based on its pKa). Indole-3-methyl acetate has been primarily detected in feces. Indole-3-methyl acetate can be biosynthesized from indole-3-acetic acid. Outside of the human body, indole-3-methyl acetate can be found in a number of food items such as pulses, green bean, sour cherry, and corn. This makes indole-3-methyl acetate a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0029738

Indole-3-propionic acid ; HMDB0002302	Indole-3-propionic acid, also known as indolepropionate or b-(3-indolyl)propionic acid, belongs to the class of organic compounds known as indolyl carboxylic acids and derivatives. Indolyl carboxylic acids and derivatives are compounds containing a carboxylic acid chain (of at least 2 carbon atoms) linked to an indole ring. Indole-3-propionic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Indole-3-propionic acid has been detected in multiple biofluids, such as feces, saliva, and blood. Within the cell, indole-3-propionic acid is primarily located in the membrane (predicted from logP). Indole-3-propionic acid can be biosynthesized from propionic acid. Outside of the human body, indole-3-propionic acid can be found in common pea. This makes indole-3-propionic acid a potential biomarker for the consumption of this food product.	http://www.hmdb.ca/metabolites/HMDB0002302
Indole-3-propionic acid ; HMDB02302	Indole-3-propionic acid, also known as indolepropionate or b-(3-indolyl)propionic acid, belongs to the class of organic compounds known as indolyl carboxylic acids and derivatives. Indolyl carboxylic acids and derivatives are compounds containing a carboxylic acid chain (of at least 2 carbon atoms) linked to an indole ring. Indole-3-propionic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Indole-3-propionic acid has been detected in multiple biofluids, such as feces, saliva, and blood. Within the cell, indole-3-propionic acid is primarily located in the membrane (predicted from logP). Indole-3-propionic acid can be biosynthesized from propionic acid. Outside of the human body, indole-3-propionic acid can be found in common pea. This makes indole-3-propionic acid a potential biomarker for the consumption of this food product.	http://www.hmdb.ca/metabolites/HMDB0002302

Indoleacetic acid ; HMDB0000197	Indole-3-acetate, also known as indoleacetic acid or IAA, belongs to the class of organic compounds known as indole-3-acetic acid derivatives. Indole-3-acetic acid derivatives are compounds containing an acetic acid (or a derivative) linked to the C3 carbon atom of an indole. Indole-3-acetate exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Indole-3-acetate has been found throughout most human tissues, and has also been detected in most biofluids, including saliva, cerebrospinal fluid, urine, and feces. Within the cell, indole-3-acetate is primarily located in the cytoplasm and mitochondria. Indole-3-acetate exists in all eukaryotes, ranging from yeast to humans. In humans, indole-3-acetate is involved in the tryptophan metabolism pathway. Indole-3-acetate is a mild, odorless, and sour tasting compound that can be found in a number of food items such as yellow zucchini, cornmint, prickly pear, and lemon verbena. This makes indole-3-acetate a potential biomarker for the consumption of these food products. Indole-3-acetate is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000197

Indoleacetic acid ; HMDB00197	Indole-3-acetate, also known as indoleacetic acid or IAA, belongs to the class of organic compounds known as indole-3-acetic acid derivatives. Indole-3-acetic acid derivatives are compounds containing an acetic acid (or a derivative) linked to the C3 carbon atom of an indole. Indole-3-acetate exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Indole-3-acetate has been found throughout most human tissues, and has also been detected in most biofluids, including saliva, cerebrospinal fluid, urine, and feces. Within the cell, indole-3-acetate is primarily located in the cytoplasm and mitochondria. Indole-3-acetate exists in all eukaryotes, ranging from yeast to humans. In humans, indole-3-acetate is involved in the tryptophan metabolism pathway. Indole-3-acetate is a mild, odorless, and sour tasting compound that can be found in a number of food items such as yellow zucchini, cornmint, prickly pear, and lemon verbena. This makes indole-3-acetate a potential biomarker for the consumption of these food products. Indole-3-acetate is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000197
Indolelactic acid ; HMDB0000671	Indolelactic acid, also known as indole-3-lactate or 5-ihipa, belongs to the class of organic compounds known as indolyl carboxylic acids and derivatives. Indolyl carboxylic acids and derivatives are compounds containing a carboxylic acid chain (of at least 2 carbon atoms) linked to an indole ring. Indolelactic acid is slightly soluble (in water) and a weakly acidic compound (based on its pKa). Indolelactic acid has been found in human prostate tissue, and has also been detected in multiple biofluids, such as feces, urine, and blood. Indolelactic acid can be biosynthesized from rac-lactic acid.	http://www.hmdb.ca/metabolites/HMDB0000671

Indolelactic acid ; HMDB00671	Indolelactic acid, also known as indole-3-lactate or 5-ihipa, belongs to the class of organic compounds known as indolyl carboxylic acids and derivatives. Indolyl carboxylic acids and derivatives are compounds containing a carboxylic acid chain (of at least 2 carbon atoms) linked to an indole ring. Indolelactic acid is slightly soluble (in water) and a weakly acidic compound (based on its pKa). Indolelactic acid has been found in human prostate tissue, and has also been detected in multiple biofluids, such as feces, urine, and blood. Indolelactic acid can be biosynthesized from rac-lactic acid.	http://www.hmdb.ca/metabolites/HMDB0000671
Indoxyl sulfate ; HMDB0000682	Indoxyl sulfate, also known as indican or sulfate, indoxyl, belongs to the class of organic compounds known as arylsulfates. These are organic compounds containing a sulfate group that carries an aryl group through an ether group. Indoxyl sulfate is considered to be a practically insoluble (in water) and relatively neutral molecule. Indoxyl sulfate has been found in human prostate, kidney and muscle tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, indoxyl sulfate is primarily located in the cytoplasm. Indoxyl sulfate can be converted into indoxyl. Indoxyl sulfate is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000682
Indoxyl sulfate ; HMDB00682	Indoxyl sulfate, also known as indican or sulfate, indoxyl, belongs to the class of organic compounds known as arylsulfates. These are organic compounds containing a sulfate group that carries an aryl group through an ether group. Indoxyl sulfate is considered to be a practically insoluble (in water) and relatively neutral molecule. Indoxyl sulfate has been found in human prostate, kidney and muscle tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, indoxyl sulfate is primarily located in the cytoplasm. Indoxyl sulfate can be converted into indoxyl. Indoxyl sulfate is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000682

Inosine ; HMDB0000195	Inosine, also known as hypoxanthosine or panholic-L, belongs to the class of organic compounds known as purine nucleosides. Purine nucleosides are compounds comprising a purine base attached to a ribosyl or deoxyribosyl moiety. Inosine exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Inosine has been found throughout most human tissues, and has also been detected in most biofluids, including feces, cerebrospinal fluid, urine, and saliva. Within the cell, inosine is primarily located in the cytoplasm, mitochondria and lysosome. Inosine exists in all eukaryotes, ranging from yeast to humans. Inosine participates in a number of enzymatic reactions. In particular, Inosine can be biosynthesized from inosinic acid through the action of the enzyme cytosolic purine 5'-nucleotidase. In addition, Inosine can be converted into hypoxanthine and ribose 1-phosphate through its interaction with the enzyme purine nucleoside phosphorylase. In humans, inosine is involved in the purine metabolism pathway, the azathioprine action pathway, the mercaptopurine action pathway, and the thioguanine action pathway. Inosine is also involved in several metabolic disorders, some of which include the AICA-ribosiduria pathway, purine nucleoside phosphorylase deficiency, adenylosuccinate lyase deficiency, and adenosine deaminase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000195

Inosine ; HMDB00195	Inosine, also known as hypoxanthosine or panholic-L, belongs to the class of organic compounds known as purine nucleosides. Purine nucleosides are compounds comprising a purine base attached to a ribosyl or deoxyribosyl moiety. Inosine exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Inosine has been found throughout most human tissues, and has also been detected in most biofluids, including feces, cerebrospinal fluid, urine, and saliva. Within the cell, inosine is primarily located in the cytoplasm, mitochondria and lysosome. Inosine exists in all eukaryotes, ranging from yeast to humans. Inosine participates in a number of enzymatic reactions. In particular, Inosine can be biosynthesized from inosinic acid through the action of the enzyme cytosolic purine 5'-nucleotidase. In addition, Inosine can be converted into hypoxanthine and ribose 1-phosphate through its interaction with the enzyme purine nucleoside phosphorylase. In humans, inosine is involved in the purine metabolism pathway, the azathioprine action pathway, the mercaptopurine action pathway, and the thioguanine action pathway. Inosine is also involved in several metabolic disorders, some of which include the AICA-ribosiduria pathway, purine nucleoside phosphorylase deficiency, adenylosuccinate lyase deficiency, and adenosine deaminase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000195

Isobutyrylglycine ; HMDB0000730	Isobutyrylglycine belongs to the class of organic compounds known as n-acyl-alpha amino acids. N-acyl-alpha amino acids are compounds containing an alpha amino acid which bears an acyl group at its terminal nitrogen atom. Isobutyrylglycine exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Isobutyrylglycine has been detected in multiple biofluids, such as urine and blood. Within the cell, isobutyrylglycine is primarily located in the cytoplasm. Isobutyrylglycine has been found to be associated with the diseases known as isobutyryl-CoA dehydrogenase deficiency; isobutyrylglycine has also been linked to several inborn metabolic disorders including ethylmalonic encephalopathy, short chain acyl-CoA dehydrogenase deficiency, and propionic acidemia.	http://www.hmdb.ca/metabolites/HMDB0000730
Isoleucyl-Glycine ; HMDB0028907	Isoleucyl-glycine, also known as i-g dipeptide or ile-gly, belongs to the class of organic compounds known as dipeptides. These are organic compounds containing a sequence of exactly two alpha-amino acids joined by a peptide bond. Isoleucyl-glycine is soluble (in water) and a weakly acidic compound (based on its pKa). Isoleucyl-glycine has been primarily detected in feces.	http://www.hmdb.ca/metabolites/HMDB0028907
Isoursodeoxycholic acid ; HMDB0000686	Isoursodeoxycholic acid, also known as iso-ursodeoxycholate, belongs to the class of organic compounds known as dihydroxy bile acids, alcohols and derivatives. Dihydroxy bile acids, alcohols and derivatives are compounds containing or derived from a bile acid or alcohol, and which bears exactly two carboxylic acid groups. Isoursodeoxycholic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Isoursodeoxycholic acid has been found throughout all human tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, isoursodeoxycholic acid is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000686

Isovaleric acid ; HMDB0000718	Isovaleric acid, also known as isovalerate or 3-methylbutanoate, belongs to the class of organic compounds known as methyl-branched fatty acids. These are fatty acids with an acyl chain that has a methyl branch. Usually, they are saturated and contain only one or more methyl group. However, branches other than methyl may be present. Isovaleric acid exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Isovaleric acid has been detected in most biofluids, including blood, feces, cerebrospinal fluid, and saliva. Within the cell, isovaleric acid is primarily located in the cytoplasm and adiposome. Isovaleric acid exists in all eukaryotes, ranging from yeast to humans. Isovaleric acid is an animal, cheese, and feet tasting compound that can be found in a number of food items such as red raspberry, yellow bell pepper, burdock, and chinese cinnamon. This makes isovaleric acid a potential biomarker for the consumption of these food products. Isovaleric acid has been found to be associated with several diseases known as crohn's disease, irritable bowel syndrome, and ulcerative colitis; isovaleric acid has also been linked to several inborn metabolic disorders including isovaleric acidemia and celiac disease.	http://www.hmdb.ca/metabolites/HMDB0000718

Isovalerylcarnitine ; HMDB0000688	Isovalerylcarnitine belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, isovalerylcarnitine is considered to be a fatty ester lipid molecule. Isovalerylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. Isovalerylcarnitine has been detected in multiple biofluids, such as saliva, blood, and urine. Within the cell, isovalerylcarnitine is primarily located in the membrane (predicted from logP) and cytoplasm. Isovalerylcarnitine can be biosynthesized from isovaleric acid. Isovalerylcarnitine has been linked to several inborn metabolic disorders including very long chain acyl-CoA dehydrogenase deficiency, celiac disease, and isovaleric acidemia.	http://www.hmdb.ca/metabolites/HMDB0000688
Isovalerylcarnitine ; HMDB00688	Isovalerylcarnitine belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, isovalerylcarnitine is considered to be a fatty ester lipid molecule. Isovalerylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. Isovalerylcarnitine has been detected in multiple biofluids, such as saliva, blood, and urine. Within the cell, isovalerylcarnitine is primarily located in the membrane (predicted from logP) and cytoplasm. Isovalerylcarnitine can be biosynthesized from isovaleric acid. Isovalerylcarnitine has been linked to several inborn metabolic disorders including very long chain acyl-CoA dehydrogenase deficiency, celiac disease, and isovaleric acidemia.	http://www.hmdb.ca/metabolites/HMDB0000688

Isovalerylglycine ; HMDB0000678	Isovalerylglycine, also known as isopentanoylglycine, belongs to the class of organic compounds known as n-acyl-alpha amino acids. N-acyl-alpha amino acids are compounds containing an alpha amino acid which bears an acyl group at its terminal nitrogen atom. Isovalerylglycine exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Isovalerylglycine has been detected in multiple biofluids, such as urine and blood. Isovalerylglycine has been found to be associated with several diseases known as anorexia nervosa and short/branched chain acyl-CoA dehydrogenase deficiency; isovalerylglycine has also been linked to the inborn metabolic disorders including isovaleric acidemia.	http://www.hmdb.ca/metabolites/HMDB0000678
Isoxanthopterin ; HMDB0000704	Isoxanthopterin belongs to the class of organic compounds known as pterins and derivatives. These are polycyclic aromatic compounds containing a pterin moiety, which consist of a pteridine ring bearing a ketone and an amine group to form 2-aminopteridin-4(3H)-one. Isoxanthopterin is slightly soluble (in water) and a very weakly acidic compound (based on its pKa). Isoxanthopterin has been primarily detected in urine. Within the cell, isoxanthopterin is primarily located in the cytoplasm. Outside of the human body, isoxanthopterin can be found in soy bean. This makes isoxanthopterin a potential biomarker for the consumption of this food product.	http://www.hmdb.ca/metabolites/HMDB0000704

Isoxanthopterin ; HMDB00704	Isoxanthopterin belongs to the class of organic compounds known as pterins and derivatives. These are polycyclic aromatic compounds containing a pterin moiety, which consist of a pteridine ring bearing a ketone and an amine group to form 2-aminopteridin-4(3H)-one. Isoxanthopterin is slightly soluble (in water) and a very weakly acidic compound (based on its pKa). Isoxanthopterin has been primarily detected in urine. Within the cell, isoxanthopterin is primarily located in the cytoplasm. Outside of the human body, isoxanthopterin can be found in soy bean. This makes isoxanthopterin a potential biomarker for the consumption of this food product.	http://www.hmdb.ca/metabolites/HMDB0000704

Ketoleucine ; HMDB0000695	Ketoleucine, also known as 2-oxoisocaproate or a-oxoisohexanoate, belongs to the class of organic compounds known as short-chain keto acids and derivatives. These are keto acids with an alkyl chain the contains less than 6 carbon atoms. Ketoleucine exists as a liquid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Ketoleucine has been found in human prostate and muscle tissues, and has also been detected in most biofluids, including cerebrospinal fluid, blood, feces, and urine. Within the cell, ketoleucine is primarily located in the cytoplasm and mitochondria. Ketoleucine exists in all eukaryotes, ranging from yeast to humans. Ketoleucine participates in a number of enzymatic reactions. In particular, Ketoleucine and L-glutamic acid can be biosynthesized from L-leucine and oxoglutaric acid; which is mediated by the enzyme branched-chain-amino-acid aminotransferase, cytosolic. In addition, Ketoleucine and thiamine pyrophosphate can be converted into 3-methyl-1-hydroxybutyl-THPP; which is catalyzed by the enzyme 2-oxoisovalerate dehydrogenase. In humans, ketoleucine is involved in the valine, leucine and isoleucine degradation pathway. Ketoleucine is also involved in several metabolic disorders, some of which include isobutyryl-CoA dehydrogenase deficiency, 2-methyl-3-hydroxybutryl CoA dehydrogenase deficiency, the 3-methylglutaconic aciduria type IV pathway, and the methylmalonic aciduria pathway. Outside of the human body, ketoleucine can be found in a number of food items such as celery stalks, hyssop, elliott's blueberry, and horned melon. This makes ketoleucine a potential biomarker for the consumption of these food products. Ketoleucine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000695

Ketoleucine ; HMDB00695	Ketoleucine, also known as 2-oxoisocaproate or a-oxoisohexanoate, belongs to the class of organic compounds known as short-chain keto acids and derivatives. These are keto acids with an alkyl chain the contains less than 6 carbon atoms. Ketoleucine exists as a liquid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Ketoleucine has been found in human prostate and muscle tissues, and has also been detected in most biofluids, including cerebrospinal fluid, blood, feces, and urine. Within the cell, ketoleucine is primarily located in the cytoplasm and mitochondria. Ketoleucine exists in all eukaryotes, ranging from yeast to humans. Ketoleucine participates in a number of enzymatic reactions. In particular, Ketoleucine and L-glutamic acid can be biosynthesized from L-leucine and oxoglutaric acid; which is mediated by the enzyme branched-chain-amino-acid aminotransferase, cytosolic. In addition, Ketoleucine and thiamine pyrophosphate can be converted into 3-methyl-1-hydroxybutyl-THPP; which is catalyzed by the enzyme 2-oxoisovalerate dehydrogenase. In humans, ketoleucine is involved in the valine, leucine and isoleucine degradation pathway. Ketoleucine is also involved in several metabolic disorders, some of which include isobutyryl-CoA dehydrogenase deficiency, 2-methyl-3-hydroxybutryl CoA dehydrogenase deficiency, the 3-methylglutaconic aciduria type IV pathway, and the methylmalonic aciduria pathway. Outside of the human body, ketoleucine can be found in a number of food items such as celery stalks, hyssop, elliott's blueberry, and horned melon. This makes ketoleucine a potential biomarker for the consumption of these food products. Ketoleucine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000695

Kynurenic acid ; HMDB0000715	Kynurenic acid, also known as kynurenate or acid, kynurenic, belongs to the class of organic compounds known as quinoline carboxylic acids. These are quinolines in which the quinoline ring system is substituted by a carboxyl group at one or more positions. Kynurenic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Kynurenic acid has been found in human epidermis, brain and prostate tissues, and has also been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, kynurenic acid is primarily located in the cytoplasm. Kynurenic acid exists in all eukaryotes, ranging from yeast to humans. In humans, kynurenic acid is involved in the tryptophan metabolism pathway. Kynurenic acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000715
Kynurenic acid ; HMDB00715	Kynurenic acid, also known as kynurenate or acid, kynurenic, belongs to the class of organic compounds known as quinoline carboxylic acids. These are quinolines in which the quinoline ring system is substituted by a carboxyl group at one or more positions. Kynurenic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Kynurenic acid has been found in human epidermis, brain and prostate tissues, and has also been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, kynurenic acid is primarily located in the cytoplasm. Kynurenic acid exists in all eukaryotes, ranging from yeast to humans. In humans, kynurenic acid is involved in the tryptophan metabolism pathway. Kynurenic acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000715

L-Acetylcarnitine ; HMDB0000201	Acetyl-L-carnitine, also known as alcar or branigen, belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, acetyl-L-carnitine is considered to be a fatty ester lipid molecule. Acetyl-L-carnitine exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Acetyl-L-carnitine has been found throughout most human tissues, and has also been detected in most biofluids, including urine, saliva, cerebrospinal fluid, and breast milk. Acetyl-L-carnitine can be found anywhere throughout the human cell, such as in membrane (predicted from logP), endoplasmic reticulum, peroxisome, and cytoplasm. In humans, acetyl-L-carnitine is involved in the adrenoleukodystrophy, X-linked pathway, the Beta oxidation OF very long chain fatty acids pathway, and the oxidation OF branched chain fatty acids pathway. Acetyl-L-carnitine is also involved in the metabolic disorder called carnitine-acylcarnitine translocase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000201

L-Acetylcarnitine ; HMDB00201	Acetyl-L-carnitine, also known as alcar or branigen, belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, acetyl-L-carnitine is considered to be a fatty ester lipid molecule. Acetyl-L-carnitine exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Acetyl-L-carnitine has been found throughout most human tissues, and has also been detected in most biofluids, including urine, saliva, cerebrospinal fluid, and breast milk. Acetyl-L-carnitine can be found anywhere throughout the human cell, such as in membrane (predicted from logP), endoplasmic reticulum, peroxisome, and cytoplasm. In humans, acetyl-L-carnitine is involved in the adrenoleukodystrophy, X-linked pathway, the Beta oxidation OF very long chain fatty acids pathway, and the oxidation OF branched chain fatty acids pathway. Acetyl-L-carnitine is also involved in the metabolic disorder called carnitine-acylcarnitine translocase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000201

L-Alanine ; HMDB0000161	L-Alanine, also known as (S)-alanine or L-alpha-alanine, belongs to the class of organic compounds known as alanine and derivatives. Alanine and derivatives are compounds containing alanine or a derivative thereof resulting from reaction of alanine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Alanine is a drug which is used for protein synthesis. L-Alanine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Alanine has been found throughout all human tissues, and has also been detected in most biofluids, including saliva, urine, cerebrospinal fluid, and blood. Within the cell, L-alanine is primarily located in the cytoplasm, mitochondria, lysosome and peroxisome. L-Alanine exists in all eukaryotes, ranging from yeast to humans. L-Alanine participates in a number of enzymatic reactions. In particular, L-Alanine and oxoglutaric acid can be converted into L-glutamic acid and pyruvic acid; which is mediated by the enzyme alanine aminotransferase 1. In addition, Hydroxypyruvic acid and L-alanine can be biosynthesized from pyruvic acid and L-serine through its interaction with the enzyme serine--pyruvate aminotransferase. In humans, L-alanine is involved in the transcription/translation pathway, the chloramphenicol action pathway, the clomocycline action pathway, and the selenoamino acid metabolism pathway. L-Alanine is also involved in several metabolic disorders, some of which include the NON ketotic hyperglycinemia pathway, the hyperglycinemia, non-ketotic pathway, Gamma-glutamyl-transpeptidase deficiency, and the glutaminolysis and cancer pathway. Outside of the human body, L-alanine can be found in apple, blackcurrant, sour cherry, and tarragon. This makes L-alanine a potential biomarker for the consumption of these food products. L-Alanine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000161

L-Alanine ; HMDB00161	L-Alanine, also known as (S)-alanine or L-alpha-alanine, belongs to the class of organic compounds known as alanine and derivatives. Alanine and derivatives are compounds containing alanine or a derivative thereof resulting from reaction of alanine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Alanine is a drug which is used for protein synthesis. L-Alanine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Alanine has been found throughout all human tissues, and has also been detected in most biofluids, including saliva, urine, cerebrospinal fluid, and blood. Within the cell, L-alanine is primarily located in the cytoplasm, mitochondria, lysosome and peroxisome. L-Alanine exists in all eukaryotes, ranging from yeast to humans. L-Alanine participates in a number of enzymatic reactions. In particular, L-Alanine and oxoglutaric acid can be converted into L-glutamic acid and pyruvic acid; which is mediated by the enzyme alanine aminotransferase 1. In addition, Hydroxypyruvic acid and L-alanine can be biosynthesized from pyruvic acid and L-serine through its interaction with the enzyme serine--pyruvate aminotransferase. In humans, L-alanine is involved in the transcription/translation pathway, the chloramphenicol action pathway, the clomocycline action pathway, and the selenoamino acid metabolism pathway. L-Alanine is also involved in several metabolic disorders, some of which include the NON ketotic hyperglycinemia pathway, the hyperglycinemia, non-ketotic pathway, Gamma-glutamyl-transpeptidase deficiency, and the glutaminolysis and cancer pathway. Outside of the human body, L-alanine can be found in apple, blackcurrant, sour cherry, and tarragon. This makes L-alanine a potential biomarker for the consumption of these food products. L-Alanine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000161

L-Allothreonine ; HMDB0004041	L-Allothreonine belongs to the class of organic compounds known as l-alpha-amino acids. These are alpha amino acids which have the L-configuration of the alpha-carbon atom. L-Allothreonine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Allothreonine has been found throughout most human tissues, and has also been detected in multiple biofluids, such as feces and urine. Within the cell, L-allothreonine is primarily located in the cytoplasm. L-Allothreonine exists in all eukaryotes, ranging from yeast to humans.	http://www.hmdb.ca/metabolites/HMDB0004041
L-alpha-Aminobutyric acid ; HMDB0000452	, also known as L-butyrine or L-homoalanine, belongs to the class of organic compounds known as l-alpha-amino acids. These are alpha amino acids which have the L-configuration of the alpha-carbon atom. Thus, is considered to be a fatty acid lipid molecule. exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). has been found in human liver and kidney tissues, and has also been detected in most biofluids, including blood, feces, urine, and cerebrospinal fluid. Within the cell, is primarily located in the cytoplasm. exists in all eukaryotes, ranging from yeast to humans. can be converted into brivaracetam and L-2-amino-4-methoxy-cis-but-3-enoic acid.	http://www.hmdb.ca/metabolites/HMDB0000452
L-Arabinose ; HMDB0000646	L-Arabinose, also known as L-arabinopyranose, belongs to the class of organic compounds known as pentoses. These are monosaccharides in which the carbohydrate moiety contains five carbon atoms. L-Arabinose exists as a solid, very soluble (in water), and a very weakly acidic compound (based on its pKa). L-Arabinose has been found in human prostate tissue, and has also been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid. L-Arabinose exists in all eukaryotes, ranging from yeast to humans. L-Arabinose has been linked to the inborn metabolic disorders including ribose-5-phosphate isomerase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000646

L-Arginine ; HMDB0000517	L-Arginine, also known as L-arg, belongs to the class of organic compounds known as l-alpha-amino acids. These are alpha amino acids which have the L-configuration of the alpha-carbon atom. L-Arginine is a drug which is used for nutritional supplementation, also for treating dietary shortage or imbalance. L-Arginine exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). L-Arginine has been found throughout most human tissues, and has also been detected in most biofluids, including feces, cerebrospinal fluid, urine, and saliva. Within the cell, L-arginine is primarily located in the cytoplasm, mitochondria and myelin sheath. L-Arginine exists in all eukaryotes, ranging from yeast to humans. L-Arginine participates in a number of enzymatic reactions. In particular, Glycine and L-arginine can be converted into guanidoacetic acid and orotidylic acid through its interaction with the enzyme glycine amidinotransferase, mitochondrial. Furthermore, Fumaric acid and L-arginine can be biosynthesized from argininosuccinic acid; which is mediated by the enzyme argininosuccinate lyase. Furthermore, L-Arginine can be converted into ornithine and urea through its interaction with the enzyme arginase-1. Finally, Fumaric acid and L-arginine can be biosynthesized from argininosuccinic acid; which is catalyzed by the enzyme argininosuccinate lyase. In humans, L-arginine is involved in the aspartate metabolism pathway, the arginine and proline metabolism pathway, the transcription/translation pathway, and the glycine and serine metabolism pathway. L-Arginine is also involved in several metabolic disorders, some of which include the hypoacetylaspartia pathway, dimethylglycine dehydrogenase deficiency, the hyperglycinemia, non-ketotic pathway, and the prolinemia type II pathway. Outside of the human body, L-arginine can be found in a number	http://www.hmdb.ca/metabolites/HMDB0000517

	of food items such as avocado, black-eyed pea, squashberry, and chinese water chestnut. This makes L-arginine a potential biomarker for the consumption of these food products. L-Arginine is a potentially toxic compound. L-Arginine has been found to be associated with several diseases known as heart failure, myopathy, lactic acidosis, and sideroblastic anemia 1, and hyperlysinuria; l-arginine has also been linked to several inborn metabolic disorders including propionic acidemia and cystinuria.	

L-Arginine ; HMDB00517	L-Arginine, also known as L-arg, belongs to the class of organic compounds known as l-alpha-amino acids. These are alpha amino acids which have the L-configuration of the alpha-carbon atom. L-Arginine is a drug which is used for nutritional supplementation, also for treating dietary shortage or imbalance. L-Arginine exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). L-Arginine has been found throughout most human tissues, and has also been detected in most biofluids, including feces, cerebrospinal fluid, urine, and saliva. Within the cell, L-arginine is primarily located in the cytoplasm, mitochondria and myelin sheath. L-Arginine exists in all eukaryotes, ranging from yeast to humans. L-Arginine participates in a number of enzymatic reactions. In particular, Glycine and L-arginine can be converted into guanidoacetic acid and orotidylic acid through its interaction with the enzyme glycine amidinotransferase, mitochondrial. Furthermore, Fumaric acid and L-arginine can be biosynthesized from argininosuccinic acid; which is mediated by the enzyme argininosuccinate lyase. Furthermore, L-Arginine can be converted into ornithine and urea through its interaction with the enzyme arginase-1. Finally, Fumaric acid and L-arginine can be biosynthesized from argininosuccinic acid; which is catalyzed by the enzyme argininosuccinate lyase. In humans, L-arginine is involved in the aspartate metabolism pathway, the arginine and proline metabolism pathway, the transcription/translation pathway, and the glycine and serine metabolism pathway. L-Arginine is also involved in several metabolic disorders, some of which include the hypoacetylaspartia pathway, dimethylglycine dehydrogenase deficiency, the hyperglycinemia, non-ketotic pathway, and the prolinemia type II pathway. Outside of the human body, L-arginine can be found in a number	http://www.hmdb.ca/metabolites/HMDB0000517

	of food items such as avocado, black-eyed pea, squashberry, and chinese water chestnut. This makes L-arginine a potential biomarker for the consumption of these food products. L-Arginine is a potentially toxic compound. L-Arginine has been found to be associated with several diseases known as heart failure, myopathy, lactic acidosis, and sideroblastic anemia 1, and hyperlysinuria; l-arginine has also been linked to several inborn metabolic disorders including propionic acidemia and cystinuria.	

L-Asparagine ; HMDB0000168	L-Asparagine, also known as Asn or aspartamic acid, belongs to the class of organic compounds known as asparagine and derivatives. Asparagine and derivatives are compounds containing asparagine or a derivative thereof resulting from reaction of asparagine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Asparagine is a drug which is used for nutritional supplementation, also for treating dietary shortage or imbalance. L-Asparagine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Asparagine has been found throughout all human tissues, and has also been detected in most biofluids, including urine, sweat, cerebrospinal fluid, and breast milk. Within the cell, L-asparagine is primarily located in the cytoplasm and mitochondria. L-Asparagine exists in all eukaryotes, ranging from yeast to humans. L-Asparagine participates in a number of enzymatic reactions. In particular, L-Asparagine can be converted into L-aspartic acid through its interaction with the enzyme isoaspartyl peptidase/l-asparaginase. Furthermore, L-Asparagine and L-glutamic acid can be biosynthesized from L-aspartic acid and L-glutamine through its interaction with the enzyme asparagine synthetase [glutamine-hydrolyzing]. Furthermore, L-Asparagine and L-glutamic acid can be biosynthesized from L-aspartic acid and L-glutamine; which is catalyzed by the enzyme asparagine synthetase [glutamine-hydrolyzing]. Finally, L-Asparagine can be converted into L-aspartic acid through the action of the enzyme isoaspartyl peptidase/l-asparaginase. In humans, L-asparagine is involved in the clarithromycin action pathway, the doxycycline action pathway, the azithromycin action pathway, and the streptomycin action pathway. L-Asparagine is also involved in a few metabolic disorders, which include the	http://www.hmdb.ca/metabolites/HMDB0000168

	hypoacetylaspartia pathway, the ammonia recycling pathway, and the canavan disease pathway. L-Asparagine is a potentially toxic compound.	

L-Asparagine ; HMDB00168	L-Asparagine, also known as Asn or aspartamic acid, belongs to the class of organic compounds known as asparagine and derivatives. Asparagine and derivatives are compounds containing asparagine or a derivative thereof resulting from reaction of asparagine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Asparagine is a drug which is used for nutritional supplementation, also for treating dietary shortage or imbalance. L-Asparagine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Asparagine has been found throughout all human tissues, and has also been detected in most biofluids, including urine, sweat, cerebrospinal fluid, and breast milk. Within the cell, L-asparagine is primarily located in the cytoplasm and mitochondria. L-Asparagine exists in all eukaryotes, ranging from yeast to humans. L-Asparagine participates in a number of enzymatic reactions. In particular, L-Asparagine can be converted into L-aspartic acid through its interaction with the enzyme isoaspartyl peptidase/l-asparaginase. Furthermore, L-Asparagine and L-glutamic acid can be biosynthesized from L-aspartic acid and L-glutamine through its interaction with the enzyme asparagine synthetase [glutamine-hydrolyzing]. Furthermore, L-Asparagine and L-glutamic acid can be biosynthesized from L-aspartic acid and L-glutamine; which is catalyzed by the enzyme asparagine synthetase [glutamine-hydrolyzing]. Finally, L-Asparagine can be converted into L-aspartic acid through the action of the enzyme isoaspartyl peptidase/l-asparaginase. In humans, L-asparagine is involved in the clarithromycin action pathway, the doxycycline action pathway, the azithromycin action pathway, and the streptomycin action pathway. L-Asparagine is also involved in a few metabolic disorders, which include the	http://www.hmdb.ca/metabolites/HMDB0000168

	hypoacetylaspartia pathway, the ammonia recycling pathway, and the canavan disease pathway. L-Asparagine is a potentially toxic compound.	

L-Aspartic acid ; HMDB0000191	L-Aspartic acid, also known as L-aspartate or 2-aminosuccinate, belongs to the class of organic compounds known as aspartic acid and derivatives. Aspartic acid and derivatives are compounds containing an aspartic acid or a derivative thereof resulting from reaction of aspartic acid at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Aspartic acid exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Aspartic acid has been found throughout all human tissues, and has also been detected in most biofluids, including blood, breast milk, saliva, and sweat. Within the cell, L-aspartic acid is primarily located in the cytoplasm and mitochondria. L-Aspartic acid exists in all eukaryotes, ranging from yeast to humans. L-Aspartic acid participates in a number of enzymatic reactions. In particular, L-Aspartic acid and oxoglutaric acid can be converted into oxalacetic acid and L-glutamic acid through its interaction with the enzyme aspartate aminotransferase, mitochondrial. In addition, 5-Amino-1-(5-phospho-D-ribosyl)imidazole-4-carboxylate and L-aspartic acid can be converted into saicar through its interaction with the enzyme multifunctional protein ADE2. In humans, L-aspartic acid is involved in the homocarnosinosis pathway, the aspartate metabolism pathway, the arginine and proline metabolism pathway, and the thioguanine action pathway. L-Aspartic acid is also involved in several metabolic disorders, some of which include the canavan disease pathway, 4-hydroxybutyric aciduria/succinic semialdehyde dehydrogenase deficiency, adenosine deaminase deficiency, and the hyperinsulinism-hyperammonemia syndrome pathway. Outside of the human body, L-aspartic acid can be found in a number of food items such as black elderberry, irish moss, black cabbage, and mammee apple. This makes L-	http://www.hmdb.ca/metabolites/HMDB0000191

	aspartic acid a potential biomarker for the consumption of these food products.	

L-Aspartic acid ; HMDB00191	L-Aspartic acid, also known as L-aspartate or 2-aminosuccinate, belongs to the class of organic compounds known as aspartic acid and derivatives. Aspartic acid and derivatives are compounds containing an aspartic acid or a derivative thereof resulting from reaction of aspartic acid at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Aspartic acid exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Aspartic acid has been found throughout all human tissues, and has also been detected in most biofluids, including blood, breast milk, saliva, and sweat. Within the cell, L-aspartic acid is primarily located in the cytoplasm and mitochondria. L-Aspartic acid exists in all eukaryotes, ranging from yeast to humans. L-Aspartic acid participates in a number of enzymatic reactions. In particular, L-Aspartic acid and oxoglutaric acid can be converted into oxalacetic acid and L-glutamic acid through its interaction with the enzyme aspartate aminotransferase, mitochondrial. In addition, 5-Amino-1-(5-phospho-D-ribosyl)imidazole-4-carboxylate and L-aspartic acid can be converted into saicar through its interaction with the enzyme multifunctional protein ADE2. In humans, L-aspartic acid is involved in the homocarnosinosis pathway, the aspartate metabolism pathway, the arginine and proline metabolism pathway, and the thioguanine action pathway. L-Aspartic acid is also involved in several metabolic disorders, some of which include the canavan disease pathway, 4-hydroxybutyric aciduria/succinic semialdehyde dehydrogenase deficiency, adenosine deaminase deficiency, and the hyperinsulinism-hyperammonemia syndrome pathway. Outside of the human body, L-aspartic acid can be found in a number of food items such as black elderberry, irish moss, black cabbage, and mammee apple. This makes L-	http://www.hmdb.ca/metabolites/HMDB0000191

	aspartic acid a potential biomarker for the consumption of these food products.	

L-Carnitine ; HMDB0000062	(R)-Carnitine, also known as carnitine or carnitor, belongs to the class of organic compounds known as carnitines. These are organic compounds containing the quaternary ammonium compound carnitine (R)-Carnitine is a drug which is used for treatment of primary systemic carnitine deficiency, a genetic impairment of normal biosynthesis or utilization of levocarnitine from dietary sources, or for the treatment of secondary carnitine deficiency resulting from an inborn error of metabolism such as glutaric aciduria ii, methyl malonic aciduria, propionic acidemia, and medium chain fatty acylcoa dehydrogenase deficiency. used therapeutically to stimulate gastric and pancreatic secretions and in the treatment of hyperlipoproteinemias. parenteral levocarnitine is indicated for the prevention and treatment of carnitine deficiency in patients with end-stage renal disease (R)-Carnitine exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa) (R)-Carnitine has been found throughout most human tissues, and has also been detected in most biofluids, including feces, urine, breast milk, and cerebrospinal fluid. Within the cell, (R)-carnitine is primarily located in the cytoplasm, mitochondria, endoplasmic reticulum and peroxisome (R)-Carnitine exists in all eukaryotes, ranging from yeast to humans. In humans, (R)-carnitine is involved in carnitine synthesis pathway, the Beta oxidation OF very long chain fatty acids pathway, the adrenoleukodystrophy, X-linked pathway, and the fatty acid metabolism pathway (R)-Carnitine is also involved in several metabolic disorders, some of which include the mitochondrial Beta-oxidation OF short chain saturated fatty acids pathway, medium chain acyl-CoA dehydrogenase deficiency (mcad), short chain acyl CoA dehydrogenase deficiency (scad deficiency), and very-long-chain acyl CoA dehydrogenase deficiency (vlcad) (R)-Carnitine is a potentially toxic compound (R)-	http://www.hmdb.ca/metabolites/HMDB0000062

	Carnitine has been found to be associated with several diseases known as myopathic carnitine deficiency, carnitine transporter defect; primary systemic carnitine deficiency, and long-chain fatty acids, defect in transport of; (r)-carnitine has also been linked to several inborn metabolic disorders including propionic acidemia and 3-hydroxy-3-methylglutaryl-CoA lyase deficiency.	

L-Carnitine ; HMDB00062	(R)-Carnitine, also known as carnitine or carnitor, belongs to the class of organic compounds known as carnitines. These are organic compounds containing the quaternary ammonium compound carnitine (R)-Carnitine is a drug which is used for treatment of primary systemic carnitine deficiency, a genetic impairment of normal biosynthesis or utilization of levocarnitine from dietary sources, or for the treatment of secondary carnitine deficiency resulting from an inborn error of metabolism such as glutaric aciduria ii, methyl malonic aciduria, propionic acidemia, and medium chain fatty acylcoa dehydrogenase deficiency. used therapeutically to stimulate gastric and pancreatic secretions and in the treatment of hyperlipoproteinemias. parenteral levocarnitine is indicated for the prevention and treatment of carnitine deficiency in patients with end-stage renal disease (R)-Carnitine exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa) (R)-Carnitine has been found throughout most human tissues, and has also been detected in most biofluids, including feces, urine, breast milk, and cerebrospinal fluid. Within the cell, (R)-carnitine is primarily located in the cytoplasm, mitochondria, endoplasmic reticulum and peroxisome (R)-Carnitine exists in all eukaryotes, ranging from yeast to humans. In humans, (R)-carnitine is involved in carnitine synthesis pathway, the Beta oxidation OF very long chain fatty acids pathway, the adrenoleukodystrophy, X-linked pathway, and the fatty acid metabolism pathway (R)-Carnitine is also involved in several metabolic disorders, some of which include the mitochondrial Beta-oxidation OF short chain saturated fatty acids pathway, medium chain acyl-CoA dehydrogenase deficiency (mcad), short chain acyl CoA dehydrogenase deficiency (scad deficiency), and very-long-chain acyl CoA dehydrogenase deficiency (vlcad) (R)-Carnitine is a potentially toxic compound (R)-	http://www.hmdb.ca/metabolites/HMDB0000062

	Carnitine has been found to be associated with several diseases known as myopathic carnitine deficiency, carnitine transporter defect; primary systemic carnitine deficiency, and long-chain fatty acids, defect in transport of; (r)-carnitine has also been linked to several inborn metabolic disorders including propionic acidemia and 3-hydroxy-3-methylglutaryl-CoA lyase deficiency.	

L-Cystathionine ; HMDB0000099	L-Cystathionine belongs to the class of organic compounds known as l-cysteine-s-conjugates. L-cysteine-S-conjugates are compounds containing L-cysteine where the thio-group is conjugated. L-Cystathionine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Cystathionine has been found throughout most human tissues, and has also been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, L-cystathionine is primarily located in the cytoplasm. L-Cystathionine exists in all eukaryotes, ranging from yeast to humans. L-Cystathionine participates in a number of enzymatic reactions. In particular, L-Cystathionine can be biosynthesized from L-serine and homocysteine through its interaction with the enzyme cystathionine beta-synthase. Furthermore, L-Cystathionine can be converted into L-cysteine and 2-ketobutyric acid through its interaction with the enzyme cystathionine gamma-lyase. Furthermore, L-Cystathionine can be converted into L-cysteine and 2-ketobutyric acid; which is catalyzed by the enzyme cystathionine gamma-lyase. Finally, L-Cystathionine can be biosynthesized from L-homoserine and L-serine through the action of the enzyme cystathionine beta-synthase. In humans, L-cystathionine is involved in the homocysteine degradation pathway, the glycine and serine metabolism pathway, and the methionine metabolism pathway. L-Cystathionine is also involved in several metabolic disorders, some of which include the sarcosinemia pathway, dihydropyrimidine dehydrogenase deficiency (DHPD), the hyperglycinemia, non-ketotic pathway, and the NON ketotic hyperglycinemia pathway. L-Cystathionine has been found to be associated with several diseases known as autism and alzheimer's disease; l-cystathionine has also been linked to the inborn metabolic disorders including	http://www.hmdb.ca/metabolites/HMDB0000099

	cystathioninuria.	

L-Cysteine ; HMDB0000574	L-Cysteine, also known as C or E920, belongs to the class of organic compounds known as cysteine and derivatives. Cysteine and derivatives are compounds containing cysteine or a derivative thereof resulting from reaction of cysteine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Cysteine is a drug which is used for the prevention of liver damage and kidney damage associated with overdoses of acetaminophen. L-Cysteine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Cysteine has been found throughout most human tissues, and has also been detected in most biofluids, including feces, saliva, urine, and blood. Within the cell, L-cysteine is primarily located in the cytoplasm, mitochondria and myelin sheath. L-Cysteine exists in all eukaryotes, ranging from yeast to humans. L-Cysteine participates in a number of enzymatic reactions. In particular, L-Glutamic acid and L-cysteine can be converted into Gamma-glutamylcysteine; which is catalyzed by the enzyme glutamate--cysteine ligase. Furthermore, L-Cysteine and 2-ketobutyric acid can be biosynthesized from L-cystathionine; which is mediated by the enzyme cystathionine gamma-lyase. Furthermore, L-Cysteine and glycine can be biosynthesized from cysteinylglycine; which is catalyzed by the enzymes aminopeptidase N and caspase-7. Finally, L-Glutamic acid and L-cysteine can be converted into Gamma-glutamylcysteine through the action of the enzyme glutamate--cysteine ligase. In humans, L-cysteine is involved in the homocysteine degradation pathway, the glucose transporter defect (SGLT2) pathway, the cysteine metabolism pathway, and the metolazone action pathway. L-Cysteine is also involved in several metabolic disorders, some of which include the chlorothiazide action pathway, the triamterene action pathway,	http://www.hmdb.ca/metabolites/HMDB0000574

	cystathionine Beta-synthase deficiency, and homocystinuria, cystathionine beta-synthase deficiency. L-Cysteine is a potentially toxic compound.	

L-Cysteine ; HMDB00574	L-Cysteine, also known as C or E920, belongs to the class of organic compounds known as cysteine and derivatives. Cysteine and derivatives are compounds containing cysteine or a derivative thereof resulting from reaction of cysteine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Cysteine is a drug which is used for the prevention of liver damage and kidney damage associated with overdoses of acetaminophen. L-Cysteine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Cysteine has been found throughout most human tissues, and has also been detected in most biofluids, including feces, saliva, urine, and blood. Within the cell, L-cysteine is primarily located in the cytoplasm, mitochondria and myelin sheath. L-Cysteine exists in all eukaryotes, ranging from yeast to humans. L-Cysteine participates in a number of enzymatic reactions. In particular, L-Glutamic acid and L-cysteine can be converted into Gamma-glutamylcysteine; which is catalyzed by the enzyme glutamate--cysteine ligase. Furthermore, L-Cysteine and 2-ketobutyric acid can be biosynthesized from L-cystathionine; which is mediated by the enzyme cystathionine gamma-lyase. Furthermore, L-Cysteine and glycine can be biosynthesized from cysteinylglycine; which is catalyzed by the enzymes aminopeptidase N and caspase-7. Finally, L-Glutamic acid and L-cysteine can be converted into Gamma-glutamylcysteine through the action of the enzyme glutamate--cysteine ligase. In humans, L-cysteine is involved in the homocysteine degradation pathway, the glucose transporter defect (SGLT2) pathway, the cysteine metabolism pathway, and the metolazone action pathway. L-Cysteine is also involved in several metabolic disorders, some of which include the chlorothiazide action pathway, the triamterene action pathway,	http://www.hmdb.ca/metabolites/HMDB0000574

	cystathionine Beta-synthase deficiency, and homocystinuria, cystathionine beta-synthase deficiency. L-Cysteine is a potentially toxic compound.	
L-Cystine ; HMDB0000192	L-Cystine, also known as L-dicysteine or E921, belongs to the class of organic compounds known as l-cysteine-s-conjugates. L-cysteine-S-conjugates are compounds containing L-cysteine where the thio-group is conjugated. L-Cystine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Cystine has been found throughout all human tissues, and has also been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, L-cystine is primarily located in the cytoplasm. L-Cystine exists in all eukaryotes, ranging from yeast to humans. L-Cystine has been found to be associated with several diseases known as juvenile myoclonic epilepsy, schizophrenia, hyperlysinuria, and parkinson's disease; l-cystine has also been linked to the inborn metabolic disorders including cystinuria.	http://www.hmdb.ca/metabolites/HMDB0000192
L-Cystine ; HMDB00192	L-Cystine, also known as L-dicysteine or E921, belongs to the class of organic compounds known as l-cysteine-s-conjugates. L-cysteine-S-conjugates are compounds containing L-cysteine where the thio-group is conjugated. L-Cystine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Cystine has been found throughout all human tissues, and has also been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, L-cystine is primarily located in the cytoplasm. L-Cystine exists in all eukaryotes, ranging from yeast to humans. L-Cystine has been found to be associated with several diseases known as juvenile myoclonic epilepsy, schizophrenia, hyperlysinuria, and parkinson's disease; l-cystine has also been linked to the inborn metabolic disorders including cystinuria.	http://www.hmdb.ca/metabolites/HMDB0000192

L-Fucose ; HMDB0000174	Rhamnose, also known as L-rha or 6-deoxymannose, belongs to the class of organic compounds known as hexoses. These are monosaccharides in which the sugar unit is a is a six-carbon containing moeity. Rhamnose exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Rhamnose has been primarily detected in feces. Within the cell, rhamnose is primarily located in the cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000174
L-Fucose ; HMDB00174	Rhamnose, also known as L-rha or 6-deoxymannose, belongs to the class of organic compounds known as hexoses. These are monosaccharides in which the sugar unit is a is a six-carbon containing moeity. Rhamnose exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Rhamnose has been primarily detected in feces. Within the cell, rhamnose is primarily located in the cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000174

L-Glutamic acid ; HMDB0000148	L-Glutamic acid, also known as glutamate or acido glutamico, belongs to the class of organic compounds known as glutamic acid and derivatives. Glutamic acid and derivatives are compounds containing glutamic acid or a derivative thereof resulting from reaction of glutamic acid at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Glutamic acid exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Glutamic acid has been found throughout most human tissues, and has also been detected in most biofluids, including sweat, cerebrospinal fluid, feces, and saliva. L-Glutamic acid can be found anywhere throughout the human cell, such as in myelin sheath, lysosome, endoplasmic reticulum, and cytoplasm. L-Glutamic acid exists in all eukaryotes, ranging from yeast to humans. L-Glutamic acid participates in a number of enzymatic reactions. In particular, Allysine and L-glutamic acid can be biosynthesized from saccharopine; which is mediated by the enzyme Alpha-aminoadipic semialdehyde synthase, mitochondrial. Furthermore, Oxoadipic acid and L-glutamic acid can be biosynthesized from aminoadipic acid and oxoglutaric acid through the action of the enzyme kynurenine/alpha-aminoadipate aminotransferase, mitochondrial. Furthermore, L-Glutamic acid can be converted into L-glutamine; which is catalyzed by the enzyme glutamine synthetase. Furthermore, L-Glutamic acid can be biosynthesized from L-glutamine; which is mediated by the enzyme glutaminase liver isoform, mitochondrial. Furthermore, Alpha-Ketoisovaleric acid and L-glutamic acid can be biosynthesized from L-valine and oxoglutaric acid; which is mediated by the enzyme branched-chain-amino-acid aminotransferase, cytosolic. Finally, Ketoleucine and L-glutamic acid can be biosynthesized from L-leucine and	http://www.hmdb.ca/metabolites/HMDB0000148

	oxoglutaric acid through its interaction with the enzyme branched-chain-amino-acid aminotransferase, cytosolic. In humans, L-glutamic acid is involved in the phenylalanine and tyrosine metabolism pathway, the aspartate metabolism pathway, the nicotinate and nicotinamide metabolism pathway, and the antrafenine action pathway. L-Glutamic acid is also involved in several metabolic disorders, some of which include the gout or kelley-seegmiller syndrome pathway, the glutaric aciduria type I pathway, dihydropyrimidine dehydrogenase deficiency (DHPD), and dopamine beta-hydroxylase deficiency. Outside of the human body, L-glutamic acid can be found in a number of food items such as common cabbage, bitter gourd, avocado, and italian oregano. This makes L-glutamic acid a potential biomarker for the consumption of these food products. L-Glutamic acid is a potentially toxic compound. L-Glutamic acid has been found to be associated with several diseases known as heart failure, anoxia, leukemia, and dicarboxylic aminoaciduria; l-glutamic acid has also been linked to the inborn metabolic disorders including n-acetylglutamate synthetase deficiency.	

L-Glutamic acid ; HMDB00148	L-Glutamic acid, also known as glutamate or acido glutamico, belongs to the class of organic compounds known as glutamic acid and derivatives. Glutamic acid and derivatives are compounds containing glutamic acid or a derivative thereof resulting from reaction of glutamic acid at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Glutamic acid exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Glutamic acid has been found throughout most human tissues, and has also been detected in most biofluids, including sweat, cerebrospinal fluid, feces, and saliva. L-Glutamic acid can be found anywhere throughout the human cell, such as in myelin sheath, lysosome, endoplasmic reticulum, and cytoplasm. L-Glutamic acid exists in all eukaryotes, ranging from yeast to humans. L-Glutamic acid participates in a number of enzymatic reactions. In particular, Allysine and L-glutamic acid can be biosynthesized from saccharopine; which is mediated by the enzyme Alpha-aminoadipic semialdehyde synthase, mitochondrial. Furthermore, Oxoadipic acid and L-glutamic acid can be biosynthesized from aminoadipic acid and oxoglutaric acid through the action of the enzyme kynurenine/alpha-aminoadipate aminotransferase, mitochondrial. Furthermore, L-Glutamic acid can be converted into L-glutamine; which is catalyzed by the enzyme glutamine synthetase. Furthermore, L-Glutamic acid can be biosynthesized from L-glutamine; which is mediated by the enzyme glutaminase liver isoform, mitochondrial. Furthermore, Alpha-Ketoisovaleric acid and L-glutamic acid can be biosynthesized from L-valine and oxoglutaric acid; which is mediated by the enzyme branched-chain-amino-acid aminotransferase, cytosolic. Finally, Ketoleucine and L-glutamic acid can be biosynthesized from L-leucine and	http://www.hmdb.ca/metabolites/HMDB0000148

	oxoglutaric acid through its interaction with the enzyme branched-chain-amino-acid aminotransferase, cytosolic. In humans, L-glutamic acid is involved in the phenylalanine and tyrosine metabolism pathway, the aspartate metabolism pathway, the nicotinate and nicotinamide metabolism pathway, and the antrafenine action pathway. L-Glutamic acid is also involved in several metabolic disorders, some of which include the gout or kelley-seegmiller syndrome pathway, the glutaric aciduria type I pathway, dihydropyrimidine dehydrogenase deficiency (DHPD), and dopamine beta-hydroxylase deficiency. Outside of the human body, L-glutamic acid can be found in a number of food items such as common cabbage, bitter gourd, avocado, and italian oregano. This makes L-glutamic acid a potential biomarker for the consumption of these food products. L-Glutamic acid is a potentially toxic compound. L-Glutamic acid has been found to be associated with several diseases known as heart failure, anoxia, leukemia, and dicarboxylic aminoaciduria; l-glutamic acid has also been linked to the inborn metabolic disorders including n-acetylglutamate synthetase deficiency.	
L-Glutamine ; HMDB0000641		http://www.hmdb.ca/metabolites/HMDB0000641
L-Glutamine ; HMDB00641		http://www.hmdb.ca/metabolites/HMDB0000641

L-Histidine ; HMDB0000177	L-Histidine, also known as H, belongs to the class of organic compounds known as histidine and derivatives. Histidine and derivatives are compounds containing cysteine or a derivative thereof resulting from reaction of cysteine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Histidine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Histidine has been found throughout all human tissues, and has also been detected in most biofluids, including feces, urine, sweat, and blood. Within the cell, L-histidine is primarily located in the cytoplasm and mitochondria. L-Histidine exists in all eukaryotes, ranging from yeast to humans. L-Histidine can be converted into urocanic acid through its interaction with the enzyme histidine ammonia-lyase. In humans, L-histidine is involved in the kanamycin action pathway, the Beta-alanine metabolism pathway, the minocycline action pathway, and the amikacin action pathway. L-Histidine is also involved in several metabolic disorders, some of which include the carnosinuria, carnosinemia pathway, the histidinemia pathway, gaba-transaminase deficiency, and the ammonia recycling pathway. L-Histidine is a potentially toxic compound. L-Histidine has been found to be associated with several diseases known as pyridoxamine 5-prime-phosphate oxidase deficiency, alzheimer's disease, and dengue fever; l-histidine has also been linked to several inborn metabolic disorders including propionic acidemia and tyrosinemia I.	http://www.hmdb.ca/metabolites/HMDB0000177

L-Histidine ; HMDB00177	L-Histidine, also known as H, belongs to the class of organic compounds known as histidine and derivatives. Histidine and derivatives are compounds containing cysteine or a derivative thereof resulting from reaction of cysteine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Histidine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Histidine has been found throughout all human tissues, and has also been detected in most biofluids, including feces, urine, sweat, and blood. Within the cell, L-histidine is primarily located in the cytoplasm and mitochondria. L-Histidine exists in all eukaryotes, ranging from yeast to humans. L-Histidine can be converted into urocanic acid through its interaction with the enzyme histidine ammonia-lyase. In humans, L-histidine is involved in the kanamycin action pathway, the Beta-alanine metabolism pathway, the minocycline action pathway, and the amikacin action pathway. L-Histidine is also involved in several metabolic disorders, some of which include the carnosinuria, carnosinemia pathway, the histidinemia pathway, gaba-transaminase deficiency, and the ammonia recycling pathway. L-Histidine is a potentially toxic compound. L-Histidine has been found to be associated with several diseases known as pyridoxamine 5-prime-phosphate oxidase deficiency, alzheimer's disease, and dengue fever; l-histidine has also been linked to several inborn metabolic disorders including propionic acidemia and tyrosinemia I.	http://www.hmdb.ca/metabolites/HMDB0000177

L-Isoleucine ; HMDB0000172	, also known as I or 2S,3S-isoleucine, belongs to the class of organic compounds known as isoleucine and derivatives. Isoleucine and derivatives are compounds containing isoleucine or a derivative thereof resulting from reaction of isoleucine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. Thus, is considered to be a fatty acid lipid molecule. exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). has been found throughout all human tissues, and has also been detected in most biofluids, including urine, sweat, breast milk, and saliva. Within the cell, is primarily located in the cytoplasm and mitochondria. exists in all eukaryotes, ranging from yeast to humans. In humans, is involved in the clarithromycin action pathway, the kanamycin action pathway, the doxycycline action pathway, and the azithromycin action pathway. is also involved in several metabolic disorders, some of which include Beta-ketothiolase deficiency, 3-methylcrotonyl CoA carboxylase deficiency type I, methylmalonate semialdehyde dehydrogenase deficiency, and the isovaleric aciduria pathway. is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000172

L-Isoleucine ; HMDB00172	, also known as I or 2S,3S-isoleucine, belongs to the class of organic compounds known as isoleucine and derivatives. Isoleucine and derivatives are compounds containing isoleucine or a derivative thereof resulting from reaction of isoleucine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. Thus, is considered to be a fatty acid lipid molecule. exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). has been found throughout all human tissues, and has also been detected in most biofluids, including urine, sweat, breast milk, and saliva. Within the cell, is primarily located in the cytoplasm and mitochondria. exists in all eukaryotes, ranging from yeast to humans. In humans, is involved in the clarithromycin action pathway, the kanamycin action pathway, the doxycycline action pathway, and the azithromycin action pathway. is also involved in several metabolic disorders, some of which include Beta-ketothiolase deficiency, 3-methylcrotonyl CoA carboxylase deficiency type I, methylmalonate semialdehyde dehydrogenase deficiency, and the isovaleric aciduria pathway. is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000172

L-Kynurenine ; HMDB0000684	L-Kynurenine, also known as quinurenine, belongs to the class of organic compounds known as alkyl-phenylketones. These are aromatic compounds containing a ketone substituted by one alkyl group, and a phenyl group. L-Kynurenine exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). L-Kynurenine has been found throughout most human tissues, and has also been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, L-kynurenine is primarily located in the cytoplasm and mitochondria. L-Kynurenine exists in all eukaryotes, ranging from yeast to humans. L-Kynurenine participates in a number of enzymatic reactions. In particular, L-Kynurenine and formic acid can be biosynthesized from n'-formylkynurenine; which is mediated by the enzyme kynurenine formamidase. Furthermore, L-Kynurenine can be converted into 2-aminobenzoic acid and L-alanine; which is mediated by the enzyme kynureninase. Furthermore, Formic acid and L-kynurenine can be biosynthesized from n'-formylkynurenine through its interaction with the enzyme kynurenine formamidase. Furthermore, L-Kynurenine can be converted into 3-hydroxy-L-kynurenine; which is catalyzed by the enzyme kynurenine 3-monooxygenase. Furthermore, L-Kynurenine can be converted into 3-hydroxy-L-kynurenine; which is catalyzed by the enzyme kynurenine 3-monooxygenase. Finally, Formic acid and L-kynurenine can be biosynthesized from n'-formylkynurenine; which is catalyzed by the enzyme kynurenine formamidase. In humans, L-kynurenine is involved in the tryptophan metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0000684

L-Kynurenine ; HMDB00684	L-Kynurenine, also known as quinurenine, belongs to the class of organic compounds known as alkyl-phenylketones. These are aromatic compounds containing a ketone substituted by one alkyl group, and a phenyl group. L-Kynurenine exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). L-Kynurenine has been found throughout most human tissues, and has also been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, L-kynurenine is primarily located in the cytoplasm and mitochondria. L-Kynurenine exists in all eukaryotes, ranging from yeast to humans. L-Kynurenine participates in a number of enzymatic reactions. In particular, L-Kynurenine and formic acid can be biosynthesized from n'-formylkynurenine; which is mediated by the enzyme kynurenine formamidase. Furthermore, L-Kynurenine can be converted into 2-aminobenzoic acid and L-alanine; which is mediated by the enzyme kynureninase. Furthermore, Formic acid and L-kynurenine can be biosynthesized from n'-formylkynurenine through its interaction with the enzyme kynurenine formamidase. Furthermore, L-Kynurenine can be converted into 3-hydroxy-L-kynurenine; which is catalyzed by the enzyme kynurenine 3-monooxygenase. Furthermore, L-Kynurenine can be converted into 3-hydroxy-L-kynurenine; which is catalyzed by the enzyme kynurenine 3-monooxygenase. Finally, Formic acid and L-kynurenine can be biosynthesized from n'-formylkynurenine; which is catalyzed by the enzyme kynurenine formamidase. In humans, L-kynurenine is involved in the tryptophan metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0000684

L-Lactic acid ; HMDB0000190	D-Lactic acid, also known as lactate or D-milchsaeure, belongs to the class of organic compounds known as alpha hydroxy acids and derivatives. These are organic compounds containing a carboxylic acid substituted with a hydroxyl group on the adjacent carbon. D-Lactic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). D-Lactic acid has been found throughout most human tissues, and has also been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid. Within the cell, D-lactic acid is primarily located in the mitochondria and cytoplasm. D-Lactic acid exists in all eukaryotes, ranging from yeast to humans. D-Lactic acid participates in a number of enzymatic reactions. In particular, D-Lactic acid can be converted into pyruvic acid; which is catalyzed by the enzyme probable D-lactate dehydrogenase, mitochondrial. Furthermore, Glutathione and D-lactic acid can be biosynthesized from S-lactoylglutathione; which is catalyzed by the enzyme hydroxyacylglutathione hydrolase, mitochondrial. Furthermore, D-Lactic acid can be converted into pyruvic acid; which is catalyzed by the enzyme probable D-lactate dehydrogenase, mitochondrial. Finally, Glutathione and D-lactic acid can be biosynthesized from S-lactoylglutathione; which is catalyzed by the enzyme hydroxyacylglutathione hydrolase, mitochondrial. In humans, D-lactic acid is involved in the pyruvate metabolism pathway and the pyruvaldehyde degradation pathway. D-Lactic acid is also involved in several metabolic disorders, some of which include pyruvate kinase deficiency, pyruvate dehydrogenase complex deficiency, pyruvate decarboxylase E1 component deficiency (pdhe1 deficiency), and the primary hyperoxaluria II, PH2 pathway. Outside of the human body, D-lactic acid can be found in a number of food items such as cucurbita (gourd), cereals and cereal products, capers, and cloud ear fungus. This makes D-	http://www.hmdb.ca/metabolites/HMDB0000190

	lactic acid a potential biomarker for the consumption of these food products. D-Lactic acid is a potentially toxic compound.	

L-Lactic acid ; HMDB00190	D-Lactic acid, also known as lactate or D-milchsaeure, belongs to the class of organic compounds known as alpha hydroxy acids and derivatives. These are organic compounds containing a carboxylic acid substituted with a hydroxyl group on the adjacent carbon. D-Lactic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). D-Lactic acid has been found throughout most human tissues, and has also been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid. Within the cell, D-lactic acid is primarily located in the mitochondria and cytoplasm. D-Lactic acid exists in all eukaryotes, ranging from yeast to humans. D-Lactic acid participates in a number of enzymatic reactions. In particular, D-Lactic acid can be converted into pyruvic acid; which is catalyzed by the enzyme probable D-lactate dehydrogenase, mitochondrial. Furthermore, Glutathione and D-lactic acid can be biosynthesized from S-lactoylglutathione; which is catalyzed by the enzyme hydroxyacylglutathione hydrolase, mitochondrial. Furthermore, D-Lactic acid can be converted into pyruvic acid; which is catalyzed by the enzyme probable D-lactate dehydrogenase, mitochondrial. Finally, Glutathione and D-lactic acid can be biosynthesized from S-lactoylglutathione; which is catalyzed by the enzyme hydroxyacylglutathione hydrolase, mitochondrial. In humans, D-lactic acid is involved in the pyruvate metabolism pathway and the pyruvaldehyde degradation pathway. D-Lactic acid is also involved in several metabolic disorders, some of which include pyruvate kinase deficiency, pyruvate dehydrogenase complex deficiency, pyruvate decarboxylase E1 component deficiency (pdhe1 deficiency), and the primary hyperoxaluria II, PH2 pathway. Outside of the human body, D-lactic acid can be found in a number of food items such as cucurbita (gourd), cereals and cereal products, capers, and cloud ear fungus. This makes D-	http://www.hmdb.ca/metabolites/HMDB0000190

	lactic acid a potential biomarker for the consumption of these food products. D-Lactic acid is a potentially toxic compound.	
L-Leucine ; HMDB0000687	L-Leucine, also known as (S)-leucine or L-leucin, belongs to the class of organic compounds known as leucine and derivatives. Leucine and derivatives are compounds containing leucine or a derivative thereof resulting from reaction of leucine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Leucine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Leucine has been found throughout most human tissues, and has also been detected in most biofluids, including breast milk, sweat, blood, and saliva. Within the cell, L-leucine is primarily located in the mitochondria and cytoplasm. L-Leucine exists in all eukaryotes, ranging from yeast to humans. L-Leucine and oxoglutaric acid can be converted into ketoleucine and L-glutamic acid through its interaction with the enzyme branched-chain-amino-acid aminotransferase, cytosolic. In humans, L-leucine is involved in the methacycline action pathway, the telithromycin action pathway, the josamycin action pathway, and the neomycin action pathway. L-Leucine is also involved in several metabolic disorders, some of which include the 3-methylglutaconic aciduria type IV pathway, the 3-methylglutaconic aciduria type I pathway, 2-methyl-3-hydroxybutryl CoA dehydrogenase deficiency, and the isovaleric acidemia pathway. L-Leucine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000687

L-Leucine ; HMDB00687	L-Leucine, also known as (S)-leucine or L-leucin, belongs to the class of organic compounds known as leucine and derivatives. Leucine and derivatives are compounds containing leucine or a derivative thereof resulting from reaction of leucine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Leucine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Leucine has been found throughout most human tissues, and has also been detected in most biofluids, including breast milk, sweat, blood, and saliva. Within the cell, L-leucine is primarily located in the mitochondria and cytoplasm. L-Leucine exists in all eukaryotes, ranging from yeast to humans. L-Leucine and oxoglutaric acid can be converted into ketoleucine and L-glutamic acid through its interaction with the enzyme branched-chain-amino-acid aminotransferase, cytosolic. In humans, L-leucine is involved in the methacycline action pathway, the telithromycin action pathway, the josamycin action pathway, and the neomycin action pathway. L-Leucine is also involved in several metabolic disorders, some of which include the 3-methylglutaconic aciduria type IV pathway, the 3-methylglutaconic aciduria type I pathway, 2-methyl-3-hydroxybutryl CoA dehydrogenase deficiency, and the isovaleric acidemia pathway. L-Leucine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000687

L-Lysine ; HMDB0000182	L-Lysine, also known as (S)-lysine or L-lysin, belongs to the class of organic compounds known as l-alpha-amino acids. These are alpha amino acids which have the L-configuration of the alpha-carbon atom. L-Lysine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Lysine has been found throughout all human tissues, and has also been detected in most biofluids, including feces, blood, sweat, and cerebrospinal fluid. Within the cell, L-lysine is primarily located in the cytoplasm, mitochondria, nucleus and peroxisome. L-Lysine exists in all eukaryotes, ranging from yeast to humans. L-Lysine participates in a number of enzymatic reactions. In particular, L-Lysine and oxoglutaric acid can be converted into saccharopine; which is mediated by the enzyme Alpha-aminoadipic semialdehyde synthase, mitochondrial. Furthermore, L-Lysine can be converted into L-lysine through its interaction with the enzyme low affinity cationic amino acid transporter 2. Finally, L-Lysine and S-adenosylmethionine can be converted into N6,N6,N6-trimethyl-L-lysine and S-adenosylhomocysteine; which is mediated by the enzyme histone-lysine N-methyltransferase SETD7. In humans, L-lysine is involved in the biotin metabolism pathway, the lysine degradation pathway, carnitine synthesis pathway, and the pyridoxine dependency with seizures pathway. L-Lysine is also involved in several metabolic disorders, some of which include the hyperlysinemia II or saccharopinuria pathway, the saccharopinuria/hyperlysinemia II pathway, the glutaric aciduria type I pathway, and the hyperlysinemia I, familial pathway. L-Lysine has been found to be associated with several diseases known as pyruvate carboxylase deficiency, leukemia, schizophrenia, and lipoyltransferase 1 deficiency; l-lysine has also been linked to the inborn metabolic disorders including tyrosinemia I.	http://www.hmdb.ca/metabolites/HMDB0000182

L-Lysine ; HMDB00182	L-Lysine, also known as (S)-lysine or L-lysin, belongs to the class of organic compounds known as l-alpha-amino acids. These are alpha amino acids which have the L-configuration of the alpha-carbon atom. L-Lysine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Lysine has been found throughout all human tissues, and has also been detected in most biofluids, including feces, blood, sweat, and cerebrospinal fluid. Within the cell, L-lysine is primarily located in the cytoplasm, mitochondria, nucleus and peroxisome. L-Lysine exists in all eukaryotes, ranging from yeast to humans. L-Lysine participates in a number of enzymatic reactions. In particular, L-Lysine and oxoglutaric acid can be converted into saccharopine; which is mediated by the enzyme Alpha-aminoadipic semialdehyde synthase, mitochondrial. Furthermore, L-Lysine can be converted into L-lysine through its interaction with the enzyme low affinity cationic amino acid transporter 2. Finally, L-Lysine and S-adenosylmethionine can be converted into N6,N6,N6-trimethyl-L-lysine and S-adenosylhomocysteine; which is mediated by the enzyme histone-lysine N-methyltransferase SETD7. In humans, L-lysine is involved in the biotin metabolism pathway, the lysine degradation pathway, carnitine synthesis pathway, and the pyridoxine dependency with seizures pathway. L-Lysine is also involved in several metabolic disorders, some of which include the hyperlysinemia II or saccharopinuria pathway, the saccharopinuria/hyperlysinemia II pathway, the glutaric aciduria type I pathway, and the hyperlysinemia I, familial pathway. L-Lysine has been found to be associated with several diseases known as pyruvate carboxylase deficiency, leukemia, schizophrenia, and lipoyltransferase 1 deficiency; l-lysine has also been linked to the inborn metabolic disorders including tyrosinemia I.	http://www.hmdb.ca/metabolites/HMDB0000182

L-Malic acid ; HMDB0000156	(S)-Malic acid, also known as malate or L-apple acid, belongs to the class of organic compounds known as beta hydroxy acids and derivatives. Beta hydroxy acids and derivatives are compounds containing a carboxylic acid substituted with a hydroxyl group on the C3 carbon atom (S)-Malic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa) (S)-Malic acid has been found in human prostate tissue, and has also been detected in most biofluids, including feces, urine, saliva, and blood. Within the cell, (S)-malic acid is primarily located in the cytoplasm and mitochondria (S)-Malic acid exists in all eukaryotes, ranging from yeast to humans. In humans, (S)-malic acid is involved in the oncogenic action OF 2-hydroxyglutarate pathway, the oncogenic action OF fumarate pathway, the congenital lactic acidosis pathway, and the citric Acid cycle pathway (S)-Malic acid is also involved in several metabolic disorders, some of which include pyruvate dehydrogenase deficiency (e3), the transfer OF acetyl groups into mitochondria pathway, the primary hyperoxaluria II, PH2 pathway, and pyruvate decarboxylase E1 component deficiency (pdhe1 deficiency).	http://www.hmdb.ca/metabolites/HMDB0000156

L-Malic acid ; HMDB00156	(S)-Malic acid, also known as malate or L-apple acid, belongs to the class of organic compounds known as beta hydroxy acids and derivatives. Beta hydroxy acids and derivatives are compounds containing a carboxylic acid substituted with a hydroxyl group on the C3 carbon atom (S)-Malic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa) (S)-Malic acid has been found in human prostate tissue, and has also been detected in most biofluids, including feces, urine, saliva, and blood. Within the cell, (S)-malic acid is primarily located in the cytoplasm and mitochondria (S)-Malic acid exists in all eukaryotes, ranging from yeast to humans. In humans, (S)-malic acid is involved in the oncogenic action OF 2-hydroxyglutarate pathway, the oncogenic action OF fumarate pathway, the congenital lactic acidosis pathway, and the citric Acid cycle pathway (S)-Malic acid is also involved in several metabolic disorders, some of which include pyruvate dehydrogenase deficiency (e3), the transfer OF acetyl groups into mitochondria pathway, the primary hyperoxaluria II, PH2 pathway, and pyruvate decarboxylase E1 component deficiency (pdhe1 deficiency).	http://www.hmdb.ca/metabolites/HMDB0000156

L-Methionine ; HMDB0000696	L-Methionine, also known as liquimeth or pedameth, belongs to the class of organic compounds known as methionine and derivatives. Methionine and derivatives are compounds containing methionine or a derivative thereof resulting from reaction of methionine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Methionine is a drug which is used for protein synthesis including the formation of same, l-homocysteine, l-cysteine, taurine, and sulfate. L-Methionine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Methionine has been found throughout most human tissues, and has also been detected in most biofluids, including feces, cerebrospinal fluid, saliva, and blood. Within the cell, L-methionine is primarily located in the mitochondria and cytoplasm. L-Methionine exists in all eukaryotes, ranging from yeast to humans. Dimethylglycine and L-methionine can be biosynthesized from betaine and homocysteine; which is mediated by the enzyme betaine--homocysteine S-methyltransferase 1. In humans, L-methionine is involved in spermidine and spermine biosynthesis pathway, the arbekacin action pathway, the lincomycin action pathway, and the tobramycin action pathway. L-Methionine is also involved in several metabolic disorders, some of which include S-adenosylhomocysteine (sah) hydrolase deficiency, cystathionine Beta-synthase deficiency, the hypermethioninemia pathway, and the homocystinuria-megaloblastic anemia due to defect in cobalamin metabolism, CBLG complementation type pathway. L-Methionine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000696

L-Methionine ; HMDB00696	L-Methionine, also known as liquimeth or pedameth, belongs to the class of organic compounds known as methionine and derivatives. Methionine and derivatives are compounds containing methionine or a derivative thereof resulting from reaction of methionine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Methionine is a drug which is used for protein synthesis including the formation of same, l-homocysteine, l-cysteine, taurine, and sulfate. L-Methionine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Methionine has been found throughout most human tissues, and has also been detected in most biofluids, including feces, cerebrospinal fluid, saliva, and blood. Within the cell, L-methionine is primarily located in the mitochondria and cytoplasm. L-Methionine exists in all eukaryotes, ranging from yeast to humans. Dimethylglycine and L-methionine can be biosynthesized from betaine and homocysteine; which is mediated by the enzyme betaine--homocysteine S-methyltransferase 1. In humans, L-methionine is involved in spermidine and spermine biosynthesis pathway, the arbekacin action pathway, the lincomycin action pathway, and the tobramycin action pathway. L-Methionine is also involved in several metabolic disorders, some of which include S-adenosylhomocysteine (sah) hydrolase deficiency, cystathionine Beta-synthase deficiency, the hypermethioninemia pathway, and the homocystinuria-megaloblastic anemia due to defect in cobalamin metabolism, CBLG complementation type pathway. L-Methionine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000696

L-Octanoylcarnitine ; HMDB0000791	, also known as octanoylcarnitine, belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, is considered to be a fatty ester lipid molecule. is considered to be a practically insoluble (in water) and relatively neutral molecule. has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, is primarily located in the membrane (predicted from logP), cytoplasm and mitochondria. In humans, is involved in the metabolic disorder called the mitochondrial Beta-oxidation OF short chain saturated fatty acids pathway. has been linked to several inborn metabolic disorders including celiac disease and glutaric aciduria II.	http://www.hmdb.ca/metabolites/HMDB0000791
L-Octanoylcarnitine ; HMDB00791	, also known as octanoylcarnitine, belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, is considered to be a fatty ester lipid molecule. is considered to be a practically insoluble (in water) and relatively neutral molecule. has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, is primarily located in the membrane (predicted from logP), cytoplasm and mitochondria. In humans, is involved in the metabolic disorder called the mitochondrial Beta-oxidation OF short chain saturated fatty acids pathway. has been linked to several inborn metabolic disorders including celiac disease and glutaric aciduria II.	http://www.hmdb.ca/metabolites/HMDB0000791

L-Palmitoylcarnitine ; HMDB0000222	Palmitoylcarnitine, also known as hexadecanoylcarnitine, belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, palmitoylcarnitine is considered to be a fatty ester lipid molecule. Palmitoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. Palmitoylcarnitine has been primarily detected in saliva, feces, urine, and blood. Within the cell, palmitoylcarnitine is primarily located in the cytoplasm, membrane (predicted from logP) and mitochondria. Palmitoylcarnitine exists in all eukaryotes, ranging from yeast to humans. In humans, palmitoylcarnitine is involved in the fatty acid metabolism pathway. Palmitoylcarnitine is also involved in several metabolic disorders, some of which include short chain acyl CoA dehydrogenase deficiency (scad deficiency), medium chain acyl-CoA dehydrogenase deficiency (mcad), trifunctional protein deficiency, and the ethylmalonic encephalopathy pathway. Palmitoylcarnitine has been linked to the inborn metabolic disorders including celiac disease.	http://www.hmdb.ca/metabolites/HMDB0000222

L-Palmitoylcarnitine ; HMDB00222	Palmitoylcarnitine, also known as hexadecanoylcarnitine, belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, palmitoylcarnitine is considered to be a fatty ester lipid molecule. Palmitoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. Palmitoylcarnitine has been primarily detected in saliva, feces, urine, and blood. Within the cell, palmitoylcarnitine is primarily located in the cytoplasm, membrane (predicted from logP) and mitochondria. Palmitoylcarnitine exists in all eukaryotes, ranging from yeast to humans. In humans, palmitoylcarnitine is involved in the fatty acid metabolism pathway. Palmitoylcarnitine is also involved in several metabolic disorders, some of which include short chain acyl CoA dehydrogenase deficiency (scad deficiency), medium chain acyl-CoA dehydrogenase deficiency (mcad), trifunctional protein deficiency, and the ethylmalonic encephalopathy pathway. Palmitoylcarnitine has been linked to the inborn metabolic disorders including celiac disease.	http://www.hmdb.ca/metabolites/HMDB0000222

L-Phenylalanine ; HMDB0000159	L-Phenylalanine, also known as F or endorphenyl, belongs to the class of organic compounds known as phenylalanine and derivatives. Phenylalanine and derivatives are compounds containing phenylalanine or a derivative thereof resulting from reaction of phenylalanine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Phenylalanine exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). L-Phenylalanine has been found throughout all human tissues, and has also been detected in most biofluids, including blood, cerebrospinal fluid, urine, and sweat. Within the cell, L-phenylalanine is primarily located in the cytoplasm and mitochondria. L-Phenylalanine exists in all eukaryotes, ranging from yeast to humans. L-Phenylalanine participates in a number of enzymatic reactions. In particular, L-Phenylalanine and oxoglutaric acid can be converted into phenylpyruvic acid and L-glutamic acid; which is mediated by the enzyme aspartate aminotransferase, cytoplasmic. In addition, L-Phenylalanine can be converted into phenylpyruvic acid; which is catalyzed by the enzyme L-amino-acid oxidase. In humans, L-phenylalanine is involved in the transcription/translation pathway and the phenylalanine and tyrosine metabolism pathway. L-Phenylalanine is also involved in a few metabolic disorders, which include the tyrosinemia type 3 (tyro3) pathway, the tyrosinemia type 2 (or richner-hanhart syndrome) pathway, and the phenylketonuria pathway. Outside of the human body, L-phenylalanine can be found in watermelon. This makes L-phenylalanine a potential biomarker for the consumption of this food product. L-Phenylalanine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000159

L-Phenylalanine ; HMDB00159	L-Phenylalanine, also known as F or endorphenyl, belongs to the class of organic compounds known as phenylalanine and derivatives. Phenylalanine and derivatives are compounds containing phenylalanine or a derivative thereof resulting from reaction of phenylalanine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Phenylalanine exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). L-Phenylalanine has been found throughout all human tissues, and has also been detected in most biofluids, including blood, cerebrospinal fluid, urine, and sweat. Within the cell, L-phenylalanine is primarily located in the cytoplasm and mitochondria. L-Phenylalanine exists in all eukaryotes, ranging from yeast to humans. L-Phenylalanine participates in a number of enzymatic reactions. In particular, L-Phenylalanine and oxoglutaric acid can be converted into phenylpyruvic acid and L-glutamic acid; which is mediated by the enzyme aspartate aminotransferase, cytoplasmic. In addition, L-Phenylalanine can be converted into phenylpyruvic acid; which is catalyzed by the enzyme L-amino-acid oxidase. In humans, L-phenylalanine is involved in the transcription/translation pathway and the phenylalanine and tyrosine metabolism pathway. L-Phenylalanine is also involved in a few metabolic disorders, which include the tyrosinemia type 3 (tyro3) pathway, the tyrosinemia type 2 (or richner-hanhart syndrome) pathway, and the phenylketonuria pathway. Outside of the human body, L-phenylalanine can be found in watermelon. This makes L-phenylalanine a potential biomarker for the consumption of this food product. L-Phenylalanine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000159

L-Pipecolic acid ; HMDB0000716	L-Pipecolic acid, also known as (S)-pipecolate or L-homoproline, belongs to the class of organic compounds known as l-alpha-amino acids. These are alpha amino acids which have the L-configuration of the alpha-carbon atom. L-Pipecolic acid exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Pipecolic acid has been found in human liver tissue, and has also been detected in multiple biofluids, such as feces and blood. Within the cell, L-pipecolic acid is primarily located in the peroxisome. L-Pipecolic acid can be converted into (S)-2,3,4,5-tetrahydropiperidine-2-carboxylate through the action of the enzyme peroxisomal sarcosine oxidase. In humans, L-pipecolic acid is involved in the lysine degradation pathway and the pyridoxine dependency with seizures pathway. L-Pipecolic acid is also involved in several metabolic disorders, some of which include the glutaric aciduria type I pathway, the hyperlysinemia I, familial pathway, the 2-aminoadipic 2-oxoadipic aciduria pathway, and the hyperlysinemia II or saccharopinuria pathway. Outside of the human body, L-pipecolic acid can be found in a number of food items such as natal plum, sacred lotus, redcurrant, and chinese cinnamon. This makes L-pipecolic acid a potential biomarker for the consumption of these food products. L-Pipecolic acid has been linked to several inborn metabolic disorders including peroxisomal biogenesis defect and adrenoleukodystrophy.	http://www.hmdb.ca/metabolites/HMDB0000716

L-Pipecolic acid ; HMDB00716	L-Pipecolic acid, also known as (S)-pipecolate or L-homoproline, belongs to the class of organic compounds known as l-alpha-amino acids. These are alpha amino acids which have the L-configuration of the alpha-carbon atom. L-Pipecolic acid exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Pipecolic acid has been found in human liver tissue, and has also been detected in multiple biofluids, such as feces and blood. Within the cell, L-pipecolic acid is primarily located in the peroxisome. L-Pipecolic acid can be converted into (S)-2,3,4,5-tetrahydropiperidine-2-carboxylate through the action of the enzyme peroxisomal sarcosine oxidase. In humans, L-pipecolic acid is involved in the lysine degradation pathway and the pyridoxine dependency with seizures pathway. L-Pipecolic acid is also involved in several metabolic disorders, some of which include the glutaric aciduria type I pathway, the hyperlysinemia I, familial pathway, the 2-aminoadipic 2-oxoadipic aciduria pathway, and the hyperlysinemia II or saccharopinuria pathway. Outside of the human body, L-pipecolic acid can be found in a number of food items such as natal plum, sacred lotus, redcurrant, and chinese cinnamon. This makes L-pipecolic acid a potential biomarker for the consumption of these food products. L-Pipecolic acid has been linked to several inborn metabolic disorders including peroxisomal biogenesis defect and adrenoleukodystrophy.	http://www.hmdb.ca/metabolites/HMDB0000716

L-Proline ; HMDB0000162	L-Proline, also known as L-prolin, belongs to the class of organic compounds known as proline and derivatives. Proline and derivatives are compounds containing proline or a derivative thereof resulting from reaction of proline at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Proline exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Proline has been found throughout all human tissues, and has also been detected in most biofluids, including urine, cerebrospinal fluid, breast milk, and blood. Within the cell, L-proline is primarily located in the cytoplasm, mitochondria, lysosome and endoplasmic reticulum. L-Proline exists in all eukaryotes, ranging from yeast to humans. L-Proline participates in a number of enzymatic reactions. In particular, L-Proline can be biosynthesized from 1-pyrroline-5-carboxylic acid through the action of the enzyme proline dehydrogenase 1, mitochondrial. In addition, L-Proline can be converted into 1-pyrroline-5-carboxylic acid; which is mediated by the enzyme pyrroline-5-carboxylate reductase 2. In humans, L-proline is involved in the neomycin action pathway, the lymecycline action pathway, the netilmicin action pathway, and the clarithromycin action pathway. L-Proline is also involved in several metabolic disorders, some of which include creatine deficiency, guanidinoacetate methyltransferase deficiency, L-arginine:glycine amidinotransferase deficiency, arginine: glycine amidinotransferase deficiency (agat deficiency), and the hyperprolinemia type II pathway. L-Proline is a potentially toxic compound. L-Proline has been found to be associated with several diseases known as dicarboxylic aminoaciduria, alzheimer's disease, and hemodialysis; l-proline has also been linked to several inborn metabolic disorders including glutathione synthetase deficiency	http://www.hmdb.ca/metabolites/HMDB0000162

	and iminoglycinuria.	

L-Proline ; HMDB00162	L-Proline, also known as L-prolin, belongs to the class of organic compounds known as proline and derivatives. Proline and derivatives are compounds containing proline or a derivative thereof resulting from reaction of proline at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Proline exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Proline has been found throughout all human tissues, and has also been detected in most biofluids, including urine, cerebrospinal fluid, breast milk, and blood. Within the cell, L-proline is primarily located in the cytoplasm, mitochondria, lysosome and endoplasmic reticulum. L-Proline exists in all eukaryotes, ranging from yeast to humans. L-Proline participates in a number of enzymatic reactions. In particular, L-Proline can be biosynthesized from 1-pyrroline-5-carboxylic acid through the action of the enzyme proline dehydrogenase 1, mitochondrial. In addition, L-Proline can be converted into 1-pyrroline-5-carboxylic acid; which is mediated by the enzyme pyrroline-5-carboxylate reductase 2. In humans, L-proline is involved in the neomycin action pathway, the lymecycline action pathway, the netilmicin action pathway, and the clarithromycin action pathway. L-Proline is also involved in several metabolic disorders, some of which include creatine deficiency, guanidinoacetate methyltransferase deficiency, L-arginine:glycine amidinotransferase deficiency, arginine: glycine amidinotransferase deficiency (agat deficiency), and the hyperprolinemia type II pathway. L-Proline is a potentially toxic compound. L-Proline has been found to be associated with several diseases known as dicarboxylic aminoaciduria, alzheimer's disease, and hemodialysis; l-proline has also been linked to several inborn metabolic disorders including glutathione synthetase deficiency	http://www.hmdb.ca/metabolites/HMDB0000162

	and iminoglycinuria.	

L-Serine ; HMDB0000187	L-Serine, also known as (S)-serine or L-ser, belongs to the class of organic compounds known as serine and derivatives. Serine and derivatives are compounds containing serine or a derivative thereof resulting from reaction of serine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Serine is a drug which is used as a natural moisturizing agent in some cosmetics and skin care products. L-Serine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Serine has been found throughout all human tissues, and has also been detected in most biofluids, including feces, blood, sweat, and saliva. Within the cell, L-serine is primarily located in the cytoplasm, mitochondria and peroxisome. L-Serine exists in all eukaryotes, ranging from yeast to humans. L-Serine participates in a number of enzymatic reactions. In particular, Tetrahydrofolic acid and L-serine can be biosynthesized from 5,10-methylene-THF and glycine through the action of the enzyme serine hydroxymethyltransferase, mitochondrial. Furthermore, Pyruvic acid and L-serine can be converted into hydroxypyruvic acid and L-alanine through its interaction with the enzyme serine--pyruvate aminotransferase. Furthermore, L-Serine can be converted into pyruvic acid through the action of the enzyme L-serine dehydratase/l-threonine deaminase. Finally, Tetrahydrofolic acid and L-serine can be converted into 5,10-methylene-THF, glycine, and water; which is catalyzed by the enzyme serine hydroxymethyltransferase, cytosolic. In humans, L-serine is involved in phosphatidylethanolamine biosynthesis pe(18:4(6Z,9Z,12Z,15Z)/18:1(11Z)) pathway, phosphatidylethanolamine biosynthesis pe(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/16:0) pathway,	http://www.hmdb.ca/metabolites/HMDB0000187

	phosphatidylethanolamine biosynthesis pe(14:0/24:0) pathway, and phosphatidylethanolamine biosynthesis pe(16:1(9Z)/18:0) pathway. L-Serine is also involved in several metabolic disorders, some of which include the NON ketotic hyperglycinemia pathway, the gaucher disease pathway, the hypermethioninemia pathway, and Gamma-cystathionase deficiency (CTH). L-Serine is a potentially toxic compound.	

L-Serine ; HMDB00187	L-Serine, also known as (S)-serine or L-ser, belongs to the class of organic compounds known as serine and derivatives. Serine and derivatives are compounds containing serine or a derivative thereof resulting from reaction of serine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Serine is a drug which is used as a natural moisturizing agent in some cosmetics and skin care products. L-Serine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Serine has been found throughout all human tissues, and has also been detected in most biofluids, including feces, blood, sweat, and saliva. Within the cell, L-serine is primarily located in the cytoplasm, mitochondria and peroxisome. L-Serine exists in all eukaryotes, ranging from yeast to humans. L-Serine participates in a number of enzymatic reactions. In particular, Tetrahydrofolic acid and L-serine can be biosynthesized from 5,10-methylene-THF and glycine through the action of the enzyme serine hydroxymethyltransferase, mitochondrial. Furthermore, Pyruvic acid and L-serine can be converted into hydroxypyruvic acid and L-alanine through its interaction with the enzyme serine--pyruvate aminotransferase. Furthermore, L-Serine can be converted into pyruvic acid through the action of the enzyme L-serine dehydratase/l-threonine deaminase. Finally, Tetrahydrofolic acid and L-serine can be converted into 5,10-methylene-THF, glycine, and water; which is catalyzed by the enzyme serine hydroxymethyltransferase, cytosolic. In humans, L-serine is involved in phosphatidylethanolamine biosynthesis pe(18:4(6Z,9Z,12Z,15Z)/18:1(11Z)) pathway, phosphatidylethanolamine biosynthesis pe(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/16:0) pathway,	http://www.hmdb.ca/metabolites/HMDB0000187

	phosphatidylethanolamine biosynthesis pe(14:0/24:0) pathway, and phosphatidylethanolamine biosynthesis pe(16:1(9Z)/18:0) pathway. L-Serine is also involved in several metabolic disorders, some of which include the NON ketotic hyperglycinemia pathway, the gaucher disease pathway, the hypermethioninemia pathway, and Gamma-cystathionase deficiency (CTH). L-Serine is a potentially toxic compound.	
L-Targinine ; HMDB0029416	L-Targinine, also known as L-nmma or targinina, belongs to the class of organic compounds known as arginine and derivatives. Arginine and derivatives are compounds containing arginine or a derivative thereof resulting from reaction of arginine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Targinine is slightly soluble (in water) and a moderately acidic compound (based on its pKa). L-Targinine has been primarily detected in blood. Within the cell, L-targinine is primarily located in the cytoplasm. Outside of the human body, L-targinine can be found in pulses. This makes L-targinine a potential biomarker for the consumption of this food product.	http://www.hmdb.ca/metabolites/HMDB0029416
L-Targinine ; HMDB29416	L-Targinine, also known as L-nmma or targinina, belongs to the class of organic compounds known as arginine and derivatives. Arginine and derivatives are compounds containing arginine or a derivative thereof resulting from reaction of arginine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Targinine is slightly soluble (in water) and a moderately acidic compound (based on its pKa). L-Targinine has been primarily detected in blood. Within the cell, L-targinine is primarily located in the cytoplasm. Outside of the human body, L-targinine can be found in pulses. This makes L-targinine a potential biomarker for the consumption of this food product.	http://www.hmdb.ca/metabolites/HMDB0029416

L-Theanine ; HMDB0034365	L-Theanine belongs to the class of organic compounds known as glutamine and derivatives. Glutamine and derivatives are compounds containing glutamine or a derivative thereof resulting from reaction of glutamine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Theanine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Theanine has been primarily detected in saliva. Within the cell, L-theanine is primarily located in the cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0034365
L-Threonine ; HMDB0000167	L-Threonine, also known as (2S)-threonine or L threonine, belongs to the class of organic compounds known as l-alpha-amino acids. These are alpha amino acids which have the L-configuration of the alpha-carbon atom. L-Threonine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Threonine has been found throughout all human tissues, and has also been detected in most biofluids, including sweat, feces, breast milk, and cerebrospinal fluid. Within the cell, L-threonine is primarily located in the cytoplasm and mitochondria. L-Threonine exists in all eukaryotes, ranging from yeast to humans. In humans, L-threonine is involved in the threonine and 2-oxobutanoate degradation pathway, the gentamicin action pathway, the clindamycin action pathway, and the erythromycin action pathway. L-Threonine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000167

L-Threonine ; HMDB00167	L-Threonine, also known as (2S)-threonine or L threonine, belongs to the class of organic compounds known as l-alpha-amino acids. These are alpha amino acids which have the L-configuration of the alpha-carbon atom. L-Threonine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Threonine has been found throughout all human tissues, and has also been detected in most biofluids, including sweat, feces, breast milk, and cerebrospinal fluid. Within the cell, L-threonine is primarily located in the cytoplasm and mitochondria. L-Threonine exists in all eukaryotes, ranging from yeast to humans. In humans, L-threonine is involved in the threonine and 2-oxobutanoate degradation pathway, the gentamicin action pathway, the clindamycin action pathway, and the erythromycin action pathway. L-Threonine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000167

L-Tryptophan ; HMDB0000929	L-Tryptophan, also known as Trp or W, belongs to the class of organic compounds known as indolyl carboxylic acids and derivatives. Indolyl carboxylic acids and derivatives are compounds containing a carboxylic acid chain (of at least 2 carbon atoms) linked to an indole ring. L-Tryptophan exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). L-Tryptophan has been found in human prostate tissue, and has also been detected in most biofluids, including saliva, urine, feces, and blood. Within the cell, L-tryptophan is primarily located in the mitochondria and cytoplasm. L-Tryptophan exists in all eukaryotes, ranging from yeast to humans. L-Tryptophan participates in a number of enzymatic reactions. In particular, L-Tryptophan can be converted into n'-formylkynurenine; which is catalyzed by the enzyme tryptophan 2,3-dioxygenase. Furthermore, L-Tryptophan and tetrahydrobiopterin can be converted into 5-hydroxy-L-tryptophan and 4a-hydroxytetrahydrobiopterin; which is mediated by the enzyme tryptophan 5-hydroxylase 1. Furthermore, L-Tryptophan can be biosynthesized from L-serine and indole through the action of the enzyme tryptophan synthase. Finally, L-Tryptophan can be converted into n'-formylkynurenine through the action of the enzyme indoleamine 2,3-dioxygenase. In humans, L-tryptophan is involved in the tryptophan metabolism pathway and the transcription/translation pathway. L-Tryptophan is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000929

L-Tryptophan ; HMDB00929	L-Tryptophan, also known as Trp or W, belongs to the class of organic compounds known as indolyl carboxylic acids and derivatives. Indolyl carboxylic acids and derivatives are compounds containing a carboxylic acid chain (of at least 2 carbon atoms) linked to an indole ring. L-Tryptophan exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). L-Tryptophan has been found in human prostate tissue, and has also been detected in most biofluids, including saliva, urine, feces, and blood. Within the cell, L-tryptophan is primarily located in the mitochondria and cytoplasm. L-Tryptophan exists in all eukaryotes, ranging from yeast to humans. L-Tryptophan participates in a number of enzymatic reactions. In particular, L-Tryptophan can be converted into n'-formylkynurenine; which is catalyzed by the enzyme tryptophan 2,3-dioxygenase. Furthermore, L-Tryptophan and tetrahydrobiopterin can be converted into 5-hydroxy-L-tryptophan and 4a-hydroxytetrahydrobiopterin; which is mediated by the enzyme tryptophan 5-hydroxylase 1. Furthermore, L-Tryptophan can be biosynthesized from L-serine and indole through the action of the enzyme tryptophan synthase. Finally, L-Tryptophan can be converted into n'-formylkynurenine through the action of the enzyme indoleamine 2,3-dioxygenase. In humans, L-tryptophan is involved in the tryptophan metabolism pathway and the transcription/translation pathway. L-Tryptophan is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000929

L-Tyrosine ; HMDB0000158	L-Tyrosine, also known as (S)-tyrosine or para tyrosine, belongs to the class of organic compounds known as tyrosine and derivatives. Tyrosine and derivatives are compounds containing tyrosine or a derivative thereof resulting from reaction of tyrosine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Tyrosine exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). L-Tyrosine has been found throughout all human tissues, and has also been detected in most biofluids, including saliva, cerebrospinal fluid, feces, and blood. Within the cell, L-tyrosine is primarily located in the cytoplasm and mitochondria. L-Tyrosine exists in all eukaryotes, ranging from yeast to humans. L-Tyrosine participates in a number of enzymatic reactions. In particular, L-Tyrosine and oxoglutaric acid can be converted into 4-hydroxyphenylpyruvic acid and L-glutamic acid through the action of the enzyme tyrosine aminotransferase. Furthermore, L-Tyrosine can be converted into tyramine through the action of the enzyme aromatic-L-amino-acid decarboxylase. Finally, L-Tyrosine and sapropterin can be converted into L-dopa and dihydrobiopterin through the action of the enzyme tyrosine 3-monooxygenase. In humans, L-tyrosine is involved in thyroid hormone synthesis pathway, the tyrosine metabolism pathway, the phenylalanine and tyrosine metabolism pathway, and the disulfiram action pathway. L-Tyrosine is also involved in several metabolic disorders, some of which include the hawkinsinuria pathway, the tyrosinemia type I pathway, the tyrosinemia type 3 (tyro3) pathway, and aromatic L-aminoacid decarboxylase deficiency. L-Tyrosine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000158

L-Tyrosine ; HMDB00158	L-Tyrosine, also known as (S)-tyrosine or para tyrosine, belongs to the class of organic compounds known as tyrosine and derivatives. Tyrosine and derivatives are compounds containing tyrosine or a derivative thereof resulting from reaction of tyrosine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Tyrosine exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). L-Tyrosine has been found throughout all human tissues, and has also been detected in most biofluids, including saliva, cerebrospinal fluid, feces, and blood. Within the cell, L-tyrosine is primarily located in the cytoplasm and mitochondria. L-Tyrosine exists in all eukaryotes, ranging from yeast to humans. L-Tyrosine participates in a number of enzymatic reactions. In particular, L-Tyrosine and oxoglutaric acid can be converted into 4-hydroxyphenylpyruvic acid and L-glutamic acid through the action of the enzyme tyrosine aminotransferase. Furthermore, L-Tyrosine can be converted into tyramine through the action of the enzyme aromatic-L-amino-acid decarboxylase. Finally, L-Tyrosine and sapropterin can be converted into L-dopa and dihydrobiopterin through the action of the enzyme tyrosine 3-monooxygenase. In humans, L-tyrosine is involved in thyroid hormone synthesis pathway, the tyrosine metabolism pathway, the phenylalanine and tyrosine metabolism pathway, and the disulfiram action pathway. L-Tyrosine is also involved in several metabolic disorders, some of which include the hawkinsinuria pathway, the tyrosinemia type I pathway, the tyrosinemia type 3 (tyro3) pathway, and aromatic L-aminoacid decarboxylase deficiency. L-Tyrosine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000158

L-Urobilin ; HMDB0004159	L-Urobilin, also known as L-stercobilin, belongs to the class of organic compounds known as bilirubins. These are organic compounds containing a dicarboxylic acyclic tetrapyrrole derivative. L-Urobilin exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. L-Urobilin has been detected in multiple biofluids, such as feces and urine. Within the cell, L-urobilin is primarily located in the membrane (predicted from logP).	http://www.hmdb.ca/metabolites/HMDB0004159
L-Urobilin ; HMDB04159	L-Urobilin, also known as L-stercobilin, belongs to the class of organic compounds known as bilirubins. These are organic compounds containing a dicarboxylic acyclic tetrapyrrole derivative. L-Urobilin exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. L-Urobilin has been detected in multiple biofluids, such as feces and urine. Within the cell, L-urobilin is primarily located in the membrane (predicted from logP).	http://www.hmdb.ca/metabolites/HMDB0004159

L-Valine ; HMDB0000883	L-Valine, also known as (S)-valine or L-valin, belongs to the class of organic compounds known as valine and derivatives. Valine and derivatives are compounds containing valine or a derivative thereof resulting from reaction of valine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Valine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Valine has been found in human epidermis tissue, and has also been detected in most biofluids, including breast milk, sweat, urine, and saliva. Within the cell, L-valine is primarily located in the mitochondria and cytoplasm. L-Valine exists in all eukaryotes, ranging from yeast to humans. L-Valine and oxoglutaric acid can be converted into Alpha-ketoisovaleric acid and L-glutamic acid through the action of the enzyme branched-chain-amino-acid aminotransferase, cytosolic. In humans, L-valine is involved in the doxycycline action pathway, the tobramycin action pathway, the clindamycin action pathway, and the minocycline action pathway. L-Valine is also involved in several metabolic disorders, some of which include the maple syrup urine disease pathway, 3-methylcrotonyl CoA carboxylase deficiency type I, Beta-ketothiolase deficiency, and the 3-methylglutaconic aciduria type I pathway. Outside of the human body, L-valine can be found in watermelon. This makes L-valine a potential biomarker for the consumption of this food product. L-Valine is a potentially toxic compound. L-Valine has been found to be associated with several diseases known as lipoyltransferase 1 deficiency, dihydrolipoamide dehydrogenase deficiency, paraquat poisoning, and lung cancer; l-valine has also been linked to the inborn metabolic disorders including hypervalinemia.	http://www.hmdb.ca/metabolites/HMDB0000883

L-Valine ; HMDB00883	L-Valine, also known as (S)-valine or L-valin, belongs to the class of organic compounds known as valine and derivatives. Valine and derivatives are compounds containing valine or a derivative thereof resulting from reaction of valine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. L-Valine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). L-Valine has been found in human epidermis tissue, and has also been detected in most biofluids, including breast milk, sweat, urine, and saliva. Within the cell, L-valine is primarily located in the mitochondria and cytoplasm. L-Valine exists in all eukaryotes, ranging from yeast to humans. L-Valine and oxoglutaric acid can be converted into Alpha-ketoisovaleric acid and L-glutamic acid through the action of the enzyme branched-chain-amino-acid aminotransferase, cytosolic. In humans, L-valine is involved in the doxycycline action pathway, the tobramycin action pathway, the clindamycin action pathway, and the minocycline action pathway. L-Valine is also involved in several metabolic disorders, some of which include the maple syrup urine disease pathway, 3-methylcrotonyl CoA carboxylase deficiency type I, Beta-ketothiolase deficiency, and the 3-methylglutaconic aciduria type I pathway. Outside of the human body, L-valine can be found in watermelon. This makes L-valine a potential biomarker for the consumption of this food product. L-Valine is a potentially toxic compound. L-Valine has been found to be associated with several diseases known as lipoyltransferase 1 deficiency, dihydrolipoamide dehydrogenase deficiency, paraquat poisoning, and lung cancer; l-valine has also been linked to the inborn metabolic disorders including hypervalinemia.	http://www.hmdb.ca/metabolites/HMDB0000883

Lenticin ; HMDB0061115	Lenticin, also known as glyyunnanenine or L-hypaphorine, belongs to the class of organic compounds known as l-alpha-amino acids. These are alpha amino acids which have the L-configuration of the alpha-carbon atom. Lenticin is considered to be a practically insoluble (in water) and relatively neutral molecule. Lenticin has been primarily detected in feces.	http://www.hmdb.ca/metabolites/HMDB0061115
Leucyl-Alanine ; HMDB0028922	Leucyl-alanine, also known as L-a dipeptide or leu-ala, belongs to the class of organic compounds known as dipeptides. These are organic compounds containing a sequence of exactly two alpha-amino acids joined by a peptide bond. Leucyl-alanine is soluble (in water) and a weakly acidic compound (based on its pKa). Leucyl-alanine has been primarily detected in feces.	http://www.hmdb.ca/metabolites/HMDB0028922
Levulinic acid ; HMDB0000720	Levulinic acid, also known as laevulinsaeure or levulate, belongs to the class of organic compounds known as gamma-keto acids and derivatives. These are organic compounds containing an aldehyde substituted with a keto group on the C4 carbon atom. Levulinic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Levulinic acid has been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, levulinic acid is primarily located in the cytoplasm. Levulinic acid can be converted into 5-aminolevulinic acid. Levulinic acid is a sweet, acetoin, and acidic tasting compound that can be found in a number of food items such as alcoholic beverages, cereals and cereal products, fruits, and green vegetables. This makes levulinic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000720

Levulinic acid ; HMDB00720	Levulinic acid, also known as laevulinsaeure or levulate, belongs to the class of organic compounds known as gamma-keto acids and derivatives. These are organic compounds containing an aldehyde substituted with a keto group on the C4 carbon atom. Levulinic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Levulinic acid has been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, levulinic acid is primarily located in the cytoplasm. Levulinic acid can be converted into 5-aminolevulinic acid. Levulinic acid is a sweet, acetoin, and acidic tasting compound that can be found in a number of food items such as alcoholic beverages, cereals and cereal products, fruits, and green vegetables. This makes levulinic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000720

Linoleic acid ; HMDB0000673	Linoleic acid, also known as LA or linoleate, belongs to the class of organic compounds known as lineolic acids and derivatives. These are derivatives of lineolic acid. Lineolic acid is a polyunsaturated omega-6 18 carbon long fatty acid, with two CC double bonds at the 9- and 12-positions. Linoleic acid exists as a liquid and is considered to be practically insoluble (in water) and relatively neutral. Linoleic acid has been found throughout most human tissues, and has also been detected in most biofluids, including saliva, cerebrospinal fluid, urine, and feces. Within the cell, linoleic acid is primarily located in the cytoplasm, membrane (predicted from logP) and myelin sheath. Linoleic acid can be converted into Gamma-linolenic acid through the action of the enzyme fatty acid desaturase 2. In humans, linoleic acid is involved in the Alpha linolenic Acid and linoleic Acid metabolism pathway. Outside of the human body, linoleic acid can be found in a number of food items such as jujube, star fruit, winter savory, and black mulberry. This makes linoleic acid a potential biomarker for the consumption of these food products. Linoleic acid is a potentially toxic compound. Linoleic acid has been found to be associated with several diseases known as schizophrenia, thyroid cancer, cirrhosis, and hypertension; linoleic acid has also been linked to the inborn metabolic disorders including isovaleric acidemia.	http://www.hmdb.ca/metabolites/HMDB0000673

Linoleic acid ; HMDB00673	Linoleic acid, also known as LA or linoleate, belongs to the class of organic compounds known as lineolic acids and derivatives. These are derivatives of lineolic acid. Lineolic acid is a polyunsaturated omega-6 18 carbon long fatty acid, with two CC double bonds at the 9- and 12-positions. Linoleic acid exists as a liquid and is considered to be practically insoluble (in water) and relatively neutral. Linoleic acid has been found throughout most human tissues, and has also been detected in most biofluids, including saliva, cerebrospinal fluid, urine, and feces. Within the cell, linoleic acid is primarily located in the cytoplasm, membrane (predicted from logP) and myelin sheath. Linoleic acid can be converted into Gamma-linolenic acid through the action of the enzyme fatty acid desaturase 2. In humans, linoleic acid is involved in the Alpha linolenic Acid and linoleic Acid metabolism pathway. Outside of the human body, linoleic acid can be found in a number of food items such as jujube, star fruit, winter savory, and black mulberry. This makes linoleic acid a potential biomarker for the consumption of these food products. Linoleic acid is a potentially toxic compound. Linoleic acid has been found to be associated with several diseases known as schizophrenia, thyroid cancer, cirrhosis, and hypertension; linoleic acid has also been linked to the inborn metabolic disorders including isovaleric acidemia.	http://www.hmdb.ca/metabolites/HMDB0000673

Linoleoyl ethanolamide ; HMDB0012252	Anandamide (18:2, N-6), also known as linoleamide mea or linoleoylethanolamide, belongs to the class of organic compounds known as n-acylethanolamines. N-acylethanolamines are compounds containing an N-acyethanolamine moiety, which is characterized by an acyl group is linked to the nitrogen atom of ethanolamine. Thus, anandamide (18:2, N-6) is considered to be a fatty amide lipid molecule. Anandamide (18:2, N-6) is considered to be a practically insoluble (in water) and relatively neutral molecule. Anandamide (18:2, N-6) has been primarily detected in blood. Within the cell, anandamide (18:2, N-6) is primarily located in the membrane (predicted from logP). Anandamide (18:2, N-6) can be biosynthesized from linoleic acid.	http://www.hmdb.ca/metabolites/HMDB0012252
Linoleoyl ethanolamide ; HMDB12252	Anandamide (18:2, N-6), also known as linoleamide mea or linoleoylethanolamide, belongs to the class of organic compounds known as n-acylethanolamines. N-acylethanolamines are compounds containing an N-acyethanolamine moiety, which is characterized by an acyl group is linked to the nitrogen atom of ethanolamine. Thus, anandamide (18:2, N-6) is considered to be a fatty amide lipid molecule. Anandamide (18:2, N-6) is considered to be a practically insoluble (in water) and relatively neutral molecule. Anandamide (18:2, N-6) has been primarily detected in blood. Within the cell, anandamide (18:2, N-6) is primarily located in the membrane (predicted from logP). Anandamide (18:2, N-6) can be biosynthesized from linoleic acid.	http://www.hmdb.ca/metabolites/HMDB0012252

Linoleyl carnitine ; HMDB0006469	9,12-Hexadecadienylcarnitine, also known as octadecadienyl-L-carnitine or alpha-linoleoylcarnitine, belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, 9,12-hexadecadienylcarnitine is considered to be a fatty ester lipid molecule. 9,12-Hexadecadienylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. 9,12-Hexadecadienylcarnitine has been detected in multiple biofluids, such as urine and blood. Within the cell, 9,12-hexadecadienylcarnitine is primarily located in the cytoplasm, membrane (predicted from logP) and mitochondria. 9,12-Hexadecadienylcarnitine can be biosynthesized from linoleic acid. 9,12-Hexadecadienylcarnitine has been linked to the inborn metabolic disorders including glutaric aciduria II.	http://www.hmdb.ca/metabolites/HMDB0006469

Linoleyl carnitine ; HMDB06469	9,12-Hexadecadienylcarnitine, also known as octadecadienyl-L-carnitine or alpha-linoleoylcarnitine, belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, 9,12-hexadecadienylcarnitine is considered to be a fatty ester lipid molecule. 9,12-Hexadecadienylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. 9,12-Hexadecadienylcarnitine has been detected in multiple biofluids, such as urine and blood. Within the cell, 9,12-hexadecadienylcarnitine is primarily located in the cytoplasm, membrane (predicted from logP) and mitochondria. 9,12-Hexadecadienylcarnitine can be biosynthesized from linoleic acid. 9,12-Hexadecadienylcarnitine has been linked to the inborn metabolic disorders including glutaric aciduria II.	http://www.hmdb.ca/metabolites/HMDB0006469

Lithocholic acid ; HMDB0000761	Lithocholic acid, also known as lithocholate or 5b-cholanate-3a-ol, belongs to the class of organic compounds known as monohydroxy bile acids, alcohols and derivatives. These are bile acids, alcohols or any of their derivatives bearing a hydroxyl group. Lithocholic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Lithocholic acid has been found in human hepatic tissue, intestine and liver tissues, and has also been primarily detected in bile, feces, urine, and blood. Within the cell, lithocholic acid is primarily located in the membrane (predicted from logP) and cytoplasm. In humans, lithocholic acid is involved in bile acid biosynthesis pathway, congenital bile acid synthesis defect type II pathway, congenital bile acid synthesis defect type III pathway, and the cerebrotendinous xanthomatosis (CTX) pathway. Lithocholic acid is also involved in a few metabolic disorders, which include the familial hypercholanemia (fhca) pathway, the zellweger syndrome pathway, and 27-hydroxylase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000761

Lithocholic acid ; HMDB00761	Lithocholic acid, also known as lithocholate or 5b-cholanate-3a-ol, belongs to the class of organic compounds known as monohydroxy bile acids, alcohols and derivatives. These are bile acids, alcohols or any of their derivatives bearing a hydroxyl group. Lithocholic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Lithocholic acid has been found in human hepatic tissue, intestine and liver tissues, and has also been primarily detected in bile, feces, urine, and blood. Within the cell, lithocholic acid is primarily located in the membrane (predicted from logP) and cytoplasm. In humans, lithocholic acid is involved in bile acid biosynthesis pathway, congenital bile acid synthesis defect type II pathway, congenital bile acid synthesis defect type III pathway, and the cerebrotendinous xanthomatosis (CTX) pathway. Lithocholic acid is also involved in a few metabolic disorders, which include the familial hypercholanemia (fhca) pathway, the zellweger syndrome pathway, and 27-hydroxylase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000761

Lithocholic acid glycine conjugate ; HMDB0000698	Lithocholic acid glycine conjugate, also known as glycolithocholic acid or lithocholylglycine, belongs to the class of organic compounds known as glycinated bile acids and derivatives. Glycinated bile acids and derivatives are compounds with a structure characterized by the presence of a glycine linked to a bile acid skeleton. Lithocholic acid glycine conjugate is considered to be a practically insoluble (in water) and relatively neutral molecule. Lithocholic acid glycine conjugate has been found throughout all human tissues, and has also been primarily detected in bile, feces, blood, and urine. Within the cell, lithocholic acid glycine conjugate is primarily located in the membrane (predicted from logP) and cytoplasm. In humans, lithocholic acid glycine conjugate is involved in bile acid biosynthesis pathway, the cerebrotendinous xanthomatosis (CTX) pathway, congenital bile acid synthesis defect type II pathway, and congenital bile acid synthesis defect type III pathway. Lithocholic acid glycine conjugate is also involved in a few metabolic disorders, which include the familial hypercholanemia (fhca) pathway, the zellweger syndrome pathway, and 27-hydroxylase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000698

Lithocholic acid glycine conjugate ; HMDB00698	Lithocholic acid glycine conjugate, also known as glycolithocholic acid or lithocholylglycine, belongs to the class of organic compounds known as glycinated bile acids and derivatives. Glycinated bile acids and derivatives are compounds with a structure characterized by the presence of a glycine linked to a bile acid skeleton. Lithocholic acid glycine conjugate is considered to be a practically insoluble (in water) and relatively neutral molecule. Lithocholic acid glycine conjugate has been found throughout all human tissues, and has also been primarily detected in bile, feces, blood, and urine. Within the cell, lithocholic acid glycine conjugate is primarily located in the membrane (predicted from logP) and cytoplasm. In humans, lithocholic acid glycine conjugate is involved in bile acid biosynthesis pathway, the cerebrotendinous xanthomatosis (CTX) pathway, congenital bile acid synthesis defect type II pathway, and congenital bile acid synthesis defect type III pathway. Lithocholic acid glycine conjugate is also involved in a few metabolic disorders, which include the familial hypercholanemia (fhca) pathway, the zellweger syndrome pathway, and 27-hydroxylase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000698

Lithocholyltaurine ; HMDB0000722	Lithocholyltaurine, also known as taurolithocholate, belongs to the class of organic compounds known as taurinated bile acids and derivatives. These are bile acid derivatives containing a taurine conjugated to the bile acid moiety. Thus, lithocholyltaurine is considered to be a steroid conjugate lipid molecule. Lithocholyltaurine exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Lithocholyltaurine has been found throughout all human tissues, and has also been primarily detected in bile, feces, blood, and urine. Within the cell, lithocholyltaurine is primarily located in the membrane (predicted from logP) and cytoplasm. In humans, lithocholyltaurine is involved in the cerebrotendinous xanthomatosis (CTX) pathway, congenital bile acid synthesis defect type III pathway, bile acid biosynthesis pathway, and congenital bile acid synthesis defect type II pathway. Lithocholyltaurine is also involved in a few metabolic disorders, which include the familial hypercholanemia (fhca) pathway, 27-hydroxylase deficiency, and the zellweger syndrome pathway.	http://www.hmdb.ca/metabolites/HMDB0000722

Lithocholyltaurine ; HMDB00722	Lithocholyltaurine, also known as taurolithocholate, belongs to the class of organic compounds known as taurinated bile acids and derivatives. These are bile acid derivatives containing a taurine conjugated to the bile acid moiety. Thus, lithocholyltaurine is considered to be a steroid conjugate lipid molecule. Lithocholyltaurine exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Lithocholyltaurine has been found throughout all human tissues, and has also been primarily detected in bile, feces, blood, and urine. Within the cell, lithocholyltaurine is primarily located in the membrane (predicted from logP) and cytoplasm. In humans, lithocholyltaurine is involved in the cerebrotendinous xanthomatosis (CTX) pathway, congenital bile acid synthesis defect type III pathway, bile acid biosynthesis pathway, and congenital bile acid synthesis defect type II pathway. Lithocholyltaurine is also involved in a few metabolic disorders, which include the familial hypercholanemia (fhca) pathway, 27-hydroxylase deficiency, and the zellweger syndrome pathway.	http://www.hmdb.ca/metabolites/HMDB0000722

LysoPC(14:0/0:0) ; HMDB0010379	PC(14:0/0:0), also known as LPC(14:0) or lysopc(14:0/0:0), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, PC(14:0/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(14:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(14:0/0:0) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva and blood. Within the cell, PC(14:0/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(14:0/0:0) exists in all eukaryotes, ranging from yeast to humans. In humans, PC(14:0/0:0) is involved in the fenoprofen action pathway, the etoricoxib action pathway, the salicylate-sodium action pathway, and the celecoxib action pathway. PC(14:0/0:0) is also involved in a couple of metabolic disorders, which include the tiaprofenic Acid action pathway and leukotriene C4 synthesis deficiency.	http://www.hmdb.ca/metabolites/HMDB0010379

LysoPC(14:0/0:0) ; HMDB10379	PC(14:0/0:0), also known as LPC(14:0) or lysopc(14:0/0:0), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, PC(14:0/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(14:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(14:0/0:0) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva and blood. Within the cell, PC(14:0/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(14:0/0:0) exists in all eukaryotes, ranging from yeast to humans. In humans, PC(14:0/0:0) is involved in the fenoprofen action pathway, the etoricoxib action pathway, the salicylate-sodium action pathway, and the celecoxib action pathway. PC(14:0/0:0) is also involved in a couple of metabolic disorders, which include the tiaprofenic Acid action pathway and leukotriene C4 synthesis deficiency.	http://www.hmdb.ca/metabolites/HMDB0010379

LysoPC(16:0) ; HMDB0010382	PC(16:0/0:0), also known as 16:0 lyso-PC or 1-palmitoyl-GPC, belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, PC(16:0/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(16:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(16:0/0:0) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, PC(16:0/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(16:0/0:0) exists in all eukaryotes, ranging from yeast to humans. In humans, PC(16:0/0:0) is involved in phospholipid biosynthesis pathway.	http://www.hmdb.ca/metabolites/HMDB0010382
LysoPC(16:0) ; HMDB10382	PC(16:0/0:0), also known as 16:0 lyso-PC or 1-palmitoyl-GPC, belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, PC(16:0/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(16:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(16:0/0:0) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, PC(16:0/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(16:0/0:0) exists in all eukaryotes, ranging from yeast to humans. In humans, PC(16:0/0:0) is involved in phospholipid biosynthesis pathway.	http://www.hmdb.ca/metabolites/HMDB0010382

LysoPC(16:1(9Z)/0:0) ; HMDB0010383	PC(16:1(9Z)/0:0), also known as LPC 16:1(9Z)/0:0 or 1-palmitoleoyl-GPC, belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, PC(16:1(9Z)/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(16:1(9Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(16:1(9Z)/0:0) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, PC(16:1(9Z)/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(16:1(9Z)/0:0) exists in all eukaryotes, ranging from yeast to humans.	http://www.hmdb.ca/metabolites/HMDB0010383
LysoPC(16:1(9Z)/0:0) ; HMDB10383	PC(16:1(9Z)/0:0), also known as LPC 16:1(9Z)/0:0 or 1-palmitoleoyl-GPC, belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, PC(16:1(9Z)/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(16:1(9Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(16:1(9Z)/0:0) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, PC(16:1(9Z)/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(16:1(9Z)/0:0) exists in all eukaryotes, ranging from yeast to humans.	http://www.hmdb.ca/metabolites/HMDB0010383

LysoPC(18:0) ; HMDB0010384	PC(18:0/0:0), also known as LPC 18:0/0:0 or 18:0 lyso-PC, belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, PC(18:0/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(18:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(18:0/0:0) has been found throughout all human tissues, and has also been detected in most biofluids, including urine, blood, cerebrospinal fluid, and feces. Within the cell, PC(18:0/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(18:0/0:0) exists in all eukaryotes, ranging from yeast to humans.	http://www.hmdb.ca/metabolites/HMDB0010384
LysoPC(18:0) ; HMDB10384	PC(18:0/0:0), also known as LPC 18:0/0:0 or 18:0 lyso-PC, belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, PC(18:0/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(18:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(18:0/0:0) has been found throughout all human tissues, and has also been detected in most biofluids, including urine, blood, cerebrospinal fluid, and feces. Within the cell, PC(18:0/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(18:0/0:0) exists in all eukaryotes, ranging from yeast to humans.	http://www.hmdb.ca/metabolites/HMDB0010384

LysoPC(18:1(9Z)) ; HMDB0002815	PC(18:1(9Z)/0:0), also known as lysopc 18:1(9Z)/0:0 or LPC(18:1W9/0:0), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, PC(18:1(9Z)/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(18:1(9Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(18:1(9Z)/0:0) has been detected in multiple biofluids, such as feces and blood. Within the cell, PC(18:1(9Z)/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(18:1(9Z)/0:0) exists in all eukaryotes, ranging from yeast to humans. Outside of the human body, PC(18:1(9Z)/0:0) can be found in a number of food items such as cucumber, rice, common buckwheat, and common wheat. This makes PC(18:1(9Z)/0:0) a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0002815

LysoPC(18:1(9Z)) ; HMDB02815	PC(18:1(9Z)/0:0), also known as lysopc 18:1(9Z)/0:0 or LPC(18:1W9/0:0), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, PC(18:1(9Z)/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(18:1(9Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(18:1(9Z)/0:0) has been detected in multiple biofluids, such as feces and blood. Within the cell, PC(18:1(9Z)/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(18:1(9Z)/0:0) exists in all eukaryotes, ranging from yeast to humans. Outside of the human body, PC(18:1(9Z)/0:0) can be found in a number of food items such as cucumber, rice, common buckwheat, and common wheat. This makes PC(18:1(9Z)/0:0) a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0002815

LysoPC(18:2(9Z,12Z)) ; HMDB0010386	PC(18:2(9Z,12Z)/0:0), also known as LPC 18:2(9Z,12Z)/0:0 or LPC(18:2n6/0:0), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, PC(18:2(9Z,12Z)/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(18:2(9Z,12Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(18:2(9Z,12Z)/0:0) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, PC(18:2(9Z,12Z)/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(18:2(9Z,12Z)/0:0) can be biosynthesized from linoleic acid. Outside of the human body, PC(18:2(9Z,12Z)/0:0) can be found in a number of food items such as acerola, deerberry, cowpea, and lemon thyme. This makes PC(18:2(9Z,12Z)/0:0) a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0010386

LysoPC(18:2(9Z,12Z)) ; HMDB10386	PC(18:2(9Z,12Z)/0:0), also known as LPC 18:2(9Z,12Z)/0:0 or LPC(18:2n6/0:0), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, PC(18:2(9Z,12Z)/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(18:2(9Z,12Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(18:2(9Z,12Z)/0:0) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, PC(18:2(9Z,12Z)/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(18:2(9Z,12Z)/0:0) can be biosynthesized from linoleic acid. Outside of the human body, PC(18:2(9Z,12Z)/0:0) can be found in a number of food items such as acerola, deerberry, cowpea, and lemon thyme. This makes PC(18:2(9Z,12Z)/0:0) a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0010386

LysoPC(18:3(6Z,9Z,12Z)) ; HMDB0010387	PC(18:3(6Z,9Z,12Z)/0:0), also known as LPC(18:3/0:0) or lysopc(18:3), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, PC(18:3(6Z,9Z,12Z)/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(18:3(6Z,9Z,12Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(18:3(6Z,9Z,12Z)/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(18:3(6Z,9Z,12Z)/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0010387
LysoPC(18:3(6Z,9Z,12Z)) ; HMDB10387	PC(18:3(6Z,9Z,12Z)/0:0), also known as LPC(18:3/0:0) or lysopc(18:3), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, PC(18:3(6Z,9Z,12Z)/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(18:3(6Z,9Z,12Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(18:3(6Z,9Z,12Z)/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(18:3(6Z,9Z,12Z)/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0010387

LysoPC(20:1(11Z)) ; HMDB0010391	PC(20:1(11Z)/0:0), also known as LPC(20:1n9/0:0) or lysopc(20:1(11Z)), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, PC(20:1(11Z)/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(20:1(11Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(20:1(11Z)/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(20:1(11Z)/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0010391
LysoPC(20:1(11Z)) ; HMDB10391	PC(20:1(11Z)/0:0), also known as LPC(20:1n9/0:0) or lysopc(20:1(11Z)), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, PC(20:1(11Z)/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(20:1(11Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(20:1(11Z)/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(20:1(11Z)/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0010391

LysoPC(20:3(5Z,8Z,11Z)) ; HMDB0010393	Lysopc(20:3(5Z,8Z,11Z)), also known as LPC 20:3(5Z,8Z,11Z)/0:0 or LPC(20:3/0:0), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, lysopc(20:3(5Z,8Z,11Z)) is considered to be a glycerophosphocholine lipid molecule. Lysopc(20:3(5Z,8Z,11Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. Lysopc(20:3(5Z,8Z,11Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, lysopc(20:3(5Z,8Z,11Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. Lysopc(20:3(5Z,8Z,11Z)) can be biosynthesized from (5Z,8Z,11Z)-icosatrienoic acid.	http://www.hmdb.ca/metabolites/HMDB0010393
LysoPC(20:3(5Z,8Z,11Z)) ; HMDB10393	Lysopc(20:3(5Z,8Z,11Z)), also known as LPC 20:3(5Z,8Z,11Z)/0:0 or LPC(20:3/0:0), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, lysopc(20:3(5Z,8Z,11Z)) is considered to be a glycerophosphocholine lipid molecule. Lysopc(20:3(5Z,8Z,11Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. Lysopc(20:3(5Z,8Z,11Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, lysopc(20:3(5Z,8Z,11Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. Lysopc(20:3(5Z,8Z,11Z)) can be biosynthesized from (5Z,8Z,11Z)-icosatrienoic acid.	http://www.hmdb.ca/metabolites/HMDB0010393

LysoPC(20:4(5Z,8Z,11Z,14Z)) ; HMDB0010395	PC(20:4(5Z,8Z,11Z,14Z)/0:0), also known as LPC 20:4(5Z,8Z,11Z,14Z)/0:0 or 1-arachidonoyl-GPC, belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, PC(20:4(5Z,8Z,11Z,14Z)/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(20:4(5Z,8Z,11Z,14Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(20:4(5Z,8Z,11Z,14Z)/0:0) has been found throughout all human tissues, and has also been primarily detected in saliva, urine, blood, and cerebrospinal fluid. Within the cell, PC(20:4(5Z,8Z,11Z,14Z)/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(20:4(5Z,8Z,11Z,14Z)/0:0) can be biosynthesized from arachidonic acid.	http://www.hmdb.ca/metabolites/HMDB0010395

LysoPC(20:4(5Z,8Z,11Z,14Z)) ; HMDB10395	PC(20:4(5Z,8Z,11Z,14Z)/0:0), also known as LPC 20:4(5Z,8Z,11Z,14Z)/0:0 or 1-arachidonoyl-GPC, belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, PC(20:4(5Z,8Z,11Z,14Z)/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(20:4(5Z,8Z,11Z,14Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(20:4(5Z,8Z,11Z,14Z)/0:0) has been found throughout all human tissues, and has also been primarily detected in saliva, urine, blood, and cerebrospinal fluid. Within the cell, PC(20:4(5Z,8Z,11Z,14Z)/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(20:4(5Z,8Z,11Z,14Z)/0:0) can be biosynthesized from arachidonic acid.	http://www.hmdb.ca/metabolites/HMDB0010395
LysoPC(20:5(5Z,8Z,11Z,14Z,17Z)) ; HMDB0010397	PC(20:5(5Z,8Z,11Z,14Z,17Z)/0:0), also known as lysophosphatidylcholine(20:5/0:0) or LPC(20:5/0:0), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, PC(20:5(5Z,8Z,11Z,14Z,17Z)/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(20:5(5Z,8Z,11Z,14Z,17Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(20:5(5Z,8Z,11Z,14Z,17Z)/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(20:5(5Z,8Z,11Z,14Z,17Z)/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0010397

LysoPC(20:5(5Z,8Z,11Z,14Z,17Z)) ; HMDB10397	PC(20:5(5Z,8Z,11Z,14Z,17Z)/0:0), also known as lysophosphatidylcholine(20:5/0:0) or LPC(20:5/0:0), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, PC(20:5(5Z,8Z,11Z,14Z,17Z)/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(20:5(5Z,8Z,11Z,14Z,17Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(20:5(5Z,8Z,11Z,14Z,17Z)/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(20:5(5Z,8Z,11Z,14Z,17Z)/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0010397
LysoPC(22:4(7Z,10Z,13Z,16Z)) ; HMDB0010401	PC(22:4(7Z,10Z,13Z,16Z)/0:0), also known as LPC(22:4/0:0) or 1-adrenoyl-GPC, belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, PC(22:4(7Z,10Z,13Z,16Z)/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(22:4(7Z,10Z,13Z,16Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(22:4(7Z,10Z,13Z,16Z)/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(22:4(7Z,10Z,13Z,16Z)/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(22:4(7Z,10Z,13Z,16Z)/0:0) can be biosynthesized from all-cis-docosa-7,10,13,16-tetraenoic acid.	http://www.hmdb.ca/metabolites/HMDB0010401

LysoPC(22:4(7Z,10Z,13Z,16Z)) ; HMDB10401	PC(22:4(7Z,10Z,13Z,16Z)/0:0), also known as LPC(22:4/0:0) or 1-adrenoyl-GPC, belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, PC(22:4(7Z,10Z,13Z,16Z)/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(22:4(7Z,10Z,13Z,16Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(22:4(7Z,10Z,13Z,16Z)/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(22:4(7Z,10Z,13Z,16Z)/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(22:4(7Z,10Z,13Z,16Z)/0:0) can be biosynthesized from all-cis-docosa-7,10,13,16-tetraenoic acid.	http://www.hmdb.ca/metabolites/HMDB0010401

LysoPC(22:5(7Z,10Z,13Z,16Z,19Z)) ; HMDB0010403	Lysopc(22:5(7Z,10Z,13Z,16Z,19Z)), also known as lysophosphatidylcholine(22:5/0:0) or LPC(22:5/0:0), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, lysopc(22:5(7Z,10Z,13Z,16Z,19Z)) is considered to be a glycerophosphocholine lipid molecule. Lysopc(22:5(7Z,10Z,13Z,16Z,19Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. Lysopc(22:5(7Z,10Z,13Z,16Z,19Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, lysopc(22:5(7Z,10Z,13Z,16Z,19Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. Lysopc(22:5(7Z,10Z,13Z,16Z,19Z)) can be biosynthesized from (7Z,10Z,13Z,16Z,19Z)-docosapentaenoic acid.	http://www.hmdb.ca/metabolites/HMDB0010403

LysoPC(22:5(7Z,10Z,13Z,16Z,19Z)) ; HMDB10403	Lysopc(22:5(7Z,10Z,13Z,16Z,19Z)), also known as lysophosphatidylcholine(22:5/0:0) or LPC(22:5/0:0), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, lysopc(22:5(7Z,10Z,13Z,16Z,19Z)) is considered to be a glycerophosphocholine lipid molecule. Lysopc(22:5(7Z,10Z,13Z,16Z,19Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. Lysopc(22:5(7Z,10Z,13Z,16Z,19Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, lysopc(22:5(7Z,10Z,13Z,16Z,19Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. Lysopc(22:5(7Z,10Z,13Z,16Z,19Z)) can be biosynthesized from (7Z,10Z,13Z,16Z,19Z)-docosapentaenoic acid.	http://www.hmdb.ca/metabolites/HMDB0010403

LysoPC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)) ; HMDB0010404	PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0), also known as LPC 22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0 or lysophosphatidylcholine(22:6/0:0), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0) can be biosynthesized from all-cis-docosa-4,7,10,13,16,19-hexaenoic acid.	http://www.hmdb.ca/metabolites/HMDB0010404

LysoPC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)) ; HMDB10404	PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0), also known as LPC 22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0 or lysophosphatidylcholine(22:6/0:0), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0) can be biosynthesized from all-cis-docosa-4,7,10,13,16,19-hexaenoic acid.	http://www.hmdb.ca/metabolites/HMDB0010404
LysoPC(24:0) ; HMDB0010405	PC(24:0/0:0), also known as GPC(24:0) or lysopc(24:0/0:0), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, PC(24:0/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(24:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(24:0/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(24:0/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(24:0/0:0) can be biosynthesized from tetracosanoic acid.	http://www.hmdb.ca/metabolites/HMDB0010405

LysoPC(24:0) ; HMDB10405	PC(24:0/0:0), also known as GPC(24:0) or lysopc(24:0/0:0), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphocholines. These are glycerophosphocholines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphocholine. Thus, PC(24:0/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(24:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(24:0/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(24:0/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(24:0/0:0) can be biosynthesized from tetracosanoic acid.	http://www.hmdb.ca/metabolites/HMDB0010405
LysoPC(P-16:0) ; HMDB0010407	PC(p-16:0/0:0), also known as LPC p-16:0/0:0 or lysoplasmalogens, belongs to the class of organic compounds known as 1-(1z-alkenyl)-glycero-3-phosphocholines. These are glycerophosphocholines that carry exactly one 1Z-alkenyl chain attached at the O1 position of a glycerol moiety through an ether linkage. Thus, PC(p-16:0/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(p-16:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(p-16:0/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(p-16:0/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0010407

LysoPC(P-16:0) ; HMDB10407	PC(p-16:0/0:0), also known as LPC p-16:0/0:0 or lysoplasmalogens, belongs to the class of organic compounds known as 1-(1z-alkenyl)-glycero-3-phosphocholines. These are glycerophosphocholines that carry exactly one 1Z-alkenyl chain attached at the O1 position of a glycerol moiety through an ether linkage. Thus, PC(p-16:0/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(p-16:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(p-16:0/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(p-16:0/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0010407
LysoPC(P-18:0) ; HMDB0013122	PC(p-18:0/0:0), also known as LPC(18:0/0:0) or GPC(p-18:0), belongs to the class of organic compounds known as 1-(1z-alkenyl)-glycero-3-phosphocholines. These are glycerophosphocholines that carry exactly one 1Z-alkenyl chain attached at the O1 position of a glycerol moiety through an ether linkage. Thus, PC(p-18:0/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(p-18:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(p-18:0/0:0) has been detected in multiple biofluids, such as blood and cerebrospinal fluid. Within the cell, PC(p-18:0/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0013122

LysoPC(P-18:0) ; HMDB13122	PC(p-18:0/0:0), also known as LPC(18:0/0:0) or GPC(p-18:0), belongs to the class of organic compounds known as 1-(1z-alkenyl)-glycero-3-phosphocholines. These are glycerophosphocholines that carry exactly one 1Z-alkenyl chain attached at the O1 position of a glycerol moiety through an ether linkage. Thus, PC(p-18:0/0:0) is considered to be a glycerophosphocholine lipid molecule. PC(p-18:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(p-18:0/0:0) has been detected in multiple biofluids, such as blood and cerebrospinal fluid. Within the cell, PC(p-18:0/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0013122
LysoPE(0:0/18:3(6Z,9Z,12Z)) ; HMDB0011478	Lysope(0:0/18:3(6Z,9Z,12Z)), also known as lyso-pe(0:0/18:3) or lpe(18:3), belongs to the class of organic compounds known as 2-acyl-sn-glycero-3-phosphoethanolamines. These are glycerophoethanolamines in which the glycerol is esterified with a fatty acid at O-2 position, and linked at position 3 to a phosphoethanolamine. Thus, lysope(0:0/18:3(6Z,9Z,12Z)) is considered to be a glycerophosphoethanolamine lipid molecule. Lysope(0:0/18:3(6Z,9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. Lysope(0:0/18:3(6Z,9Z,12Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as feces and blood. Within the cell, lysope(0:0/18:3(6Z,9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011478

LysoPE(0:0/18:3(6Z,9Z,12Z)) ; HMDB11478	Lysope(0:0/18:3(6Z,9Z,12Z)), also known as lyso-pe(0:0/18:3) or lpe(18:3), belongs to the class of organic compounds known as 2-acyl-sn-glycero-3-phosphoethanolamines. These are glycerophoethanolamines in which the glycerol is esterified with a fatty acid at O-2 position, and linked at position 3 to a phosphoethanolamine. Thus, lysope(0:0/18:3(6Z,9Z,12Z)) is considered to be a glycerophosphoethanolamine lipid molecule. Lysope(0:0/18:3(6Z,9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. Lysope(0:0/18:3(6Z,9Z,12Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as feces and blood. Within the cell, lysope(0:0/18:3(6Z,9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011478
LysoPE(16:0/0:0) ; HMDB0011503	PE(16:0/0:0), also known as 1-palmitoyl-gpe or gpe(16:0), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphoethanolamines. These are glycerophoethanolamines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphoethanolamine. Thus, PE(16:0/0:0) is considered to be a glycerophosphoethanolamine lipid molecule. PE(16:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(16:0/0:0) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as feces and blood. Within the cell, PE(16:0/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(16:0/0:0) exists in all eukaryotes, ranging from yeast to humans. In humans, PE(16:0/0:0) is involved in phospholipid biosynthesis pathway.	http://www.hmdb.ca/metabolites/HMDB0011503

LysoPE(16:0/0:0) ; HMDB11503	PE(16:0/0:0), also known as 1-palmitoyl-gpe or gpe(16:0), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphoethanolamines. These are glycerophoethanolamines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphoethanolamine. Thus, PE(16:0/0:0) is considered to be a glycerophosphoethanolamine lipid molecule. PE(16:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(16:0/0:0) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as feces and blood. Within the cell, PE(16:0/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(16:0/0:0) exists in all eukaryotes, ranging from yeast to humans. In humans, PE(16:0/0:0) is involved in phospholipid biosynthesis pathway.	http://www.hmdb.ca/metabolites/HMDB0011503
LysoPE(18:0/0:0) ; HMDB0011130	PE(18:0/0:0), also known as lyso-pe(18:0), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphoethanolamines. These are glycerophoethanolamines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphoethanolamine. Thus, PE(18:0/0:0) is considered to be a glycerophosphoethanolamine lipid molecule. PE(18:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(18:0/0:0) has been detected in multiple biofluids, such as feces and blood. Within the cell, PE(18:0/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(18:0/0:0) exists in all eukaryotes, ranging from yeast to humans.	http://www.hmdb.ca/metabolites/HMDB0011130

LysoPE(18:0/0:0) ; HMDB11130	PE(18:0/0:0), also known as lyso-pe(18:0), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphoethanolamines. These are glycerophoethanolamines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphoethanolamine. Thus, PE(18:0/0:0) is considered to be a glycerophosphoethanolamine lipid molecule. PE(18:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(18:0/0:0) has been detected in multiple biofluids, such as feces and blood. Within the cell, PE(18:0/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(18:0/0:0) exists in all eukaryotes, ranging from yeast to humans.	http://www.hmdb.ca/metabolites/HMDB0011130
LysoPE(18:1(9Z)/0:0) ; HMDB0011506	PE(18:1(9Z)/0:0), also known as 1-18:1-lysope or lyso-pe(18:1), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphoethanolamines. These are glycerophoethanolamines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphoethanolamine. Thus, PE(18:1(9Z)/0:0) is considered to be a glycerophosphoethanolamine lipid molecule. PE(18:1(9Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(18:1(9Z)/0:0) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as feces and blood. Within the cell, PE(18:1(9Z)/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(18:1(9Z)/0:0) exists in all eukaryotes, ranging from yeast to humans.	http://www.hmdb.ca/metabolites/HMDB0011506

LysoPE(18:1(9Z)/0:0) ; HMDB11506	PE(18:1(9Z)/0:0), also known as 1-18:1-lysope or lyso-pe(18:1), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphoethanolamines. These are glycerophoethanolamines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphoethanolamine. Thus, PE(18:1(9Z)/0:0) is considered to be a glycerophosphoethanolamine lipid molecule. PE(18:1(9Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(18:1(9Z)/0:0) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as feces and blood. Within the cell, PE(18:1(9Z)/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(18:1(9Z)/0:0) exists in all eukaryotes, ranging from yeast to humans.	http://www.hmdb.ca/metabolites/HMDB0011506
LysoPE(18:2(9Z,12Z)/0:0) ; HMDB0011507	PE(18:2(9Z,12Z)/0:0), also known as lyso-pe(18:2n6/0:0) or lpe(18:2), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphoethanolamines. These are glycerophoethanolamines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphoethanolamine. Thus, PE(18:2(9Z,12Z)/0:0) is considered to be a glycerophosphoethanolamine lipid molecule. PE(18:2(9Z,12Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(18:2(9Z,12Z)/0:0) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as feces and blood. Within the cell, PE(18:2(9Z,12Z)/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(18:2(9Z,12Z)/0:0) can be biosynthesized from linoleic acid.	http://www.hmdb.ca/metabolites/HMDB0011507

LysoPE(18:2(9Z,12Z)/0:0) ; HMDB11507	PE(18:2(9Z,12Z)/0:0), also known as lyso-pe(18:2n6/0:0) or lpe(18:2), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphoethanolamines. These are glycerophoethanolamines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphoethanolamine. Thus, PE(18:2(9Z,12Z)/0:0) is considered to be a glycerophosphoethanolamine lipid molecule. PE(18:2(9Z,12Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(18:2(9Z,12Z)/0:0) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as feces and blood. Within the cell, PE(18:2(9Z,12Z)/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(18:2(9Z,12Z)/0:0) can be biosynthesized from linoleic acid.	http://www.hmdb.ca/metabolites/HMDB0011507
LysoPE(20:0/0:0) ; HMDB0011511	PE(20:0/0:0), also known as lyso-pe(20:0), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphoethanolamines. These are glycerophoethanolamines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphoethanolamine. Thus, PE(20:0/0:0) is considered to be a glycerophosphoethanolamine lipid molecule. PE(20:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(20:0/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(20:0/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(20:0/0:0) can be biosynthesized from arachidic acid.	http://www.hmdb.ca/metabolites/HMDB0011511

LysoPE(20:0/0:0) ; HMDB11511	PE(20:0/0:0), also known as lyso-pe(20:0), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphoethanolamines. These are glycerophoethanolamines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphoethanolamine. Thus, PE(20:0/0:0) is considered to be a glycerophosphoethanolamine lipid molecule. PE(20:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(20:0/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(20:0/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(20:0/0:0) can be biosynthesized from arachidic acid.	http://www.hmdb.ca/metabolites/HMDB0011511
LysoPE(20:1(11Z)/0:0) ; HMDB0011512	PE(20:1(11Z)/0:0), also known as lyso-pe(20:1) or lpe(20:1/0:0), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphoethanolamines. These are glycerophoethanolamines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphoethanolamine. Thus, PE(20:1(11Z)/0:0) is considered to be a glycerophosphoethanolamine lipid molecule. PE(20:1(11Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(20:1(11Z)/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(20:1(11Z)/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011512

LysoPE(20:1(11Z)/0:0) ; HMDB11512	PE(20:1(11Z)/0:0), also known as lyso-pe(20:1) or lpe(20:1/0:0), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphoethanolamines. These are glycerophoethanolamines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphoethanolamine. Thus, PE(20:1(11Z)/0:0) is considered to be a glycerophosphoethanolamine lipid molecule. PE(20:1(11Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(20:1(11Z)/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(20:1(11Z)/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011512
LysoPE(20:4(5Z,8Z,11Z,14Z)/0:0) ; HMDB0011517	PE(20:4(5Z,8Z,11Z,14Z)/0:0), also known as lpe(20:4/0:0) or lysope(20:4), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphoethanolamines. These are glycerophoethanolamines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphoethanolamine. Thus, PE(20:4(5Z,8Z,11Z,14Z)/0:0) is considered to be a glycerophosphoethanolamine lipid molecule. PE(20:4(5Z,8Z,11Z,14Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(20:4(5Z,8Z,11Z,14Z)/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(20:4(5Z,8Z,11Z,14Z)/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(20:4(5Z,8Z,11Z,14Z)/0:0) exists in all eukaryotes, ranging from yeast to humans.	http://www.hmdb.ca/metabolites/HMDB0011517

LysoPE(20:4(5Z,8Z,11Z,14Z)/0:0) ; HMDB11517	PE(20:4(5Z,8Z,11Z,14Z)/0:0), also known as lpe(20:4/0:0) or lysope(20:4), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphoethanolamines. These are glycerophoethanolamines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphoethanolamine. Thus, PE(20:4(5Z,8Z,11Z,14Z)/0:0) is considered to be a glycerophosphoethanolamine lipid molecule. PE(20:4(5Z,8Z,11Z,14Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(20:4(5Z,8Z,11Z,14Z)/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(20:4(5Z,8Z,11Z,14Z)/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(20:4(5Z,8Z,11Z,14Z)/0:0) exists in all eukaryotes, ranging from yeast to humans.	http://www.hmdb.ca/metabolites/HMDB0011517
LysoPE(22:0/0:0) ; HMDB0011520	PE(22:0/0:0), also known as lyso-pe(22:0), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphoethanolamines. These are glycerophoethanolamines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphoethanolamine. Thus, PE(22:0/0:0) is considered to be a glycerophosphoethanolamine lipid molecule. PE(22:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(22:0/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(22:0/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011520

LysoPE(22:0/0:0) ; HMDB11520	PE(22:0/0:0), also known as lyso-pe(22:0), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphoethanolamines. These are glycerophoethanolamines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphoethanolamine. Thus, PE(22:0/0:0) is considered to be a glycerophosphoethanolamine lipid molecule. PE(22:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(22:0/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(22:0/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011520
LysoPE(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0) ; HMDB0011526	PE(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0), also known as lpe 22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0 or lysophosphatidylethanolamine(22:6/0:0), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphoethanolamines. These are glycerophoethanolamines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphoethanolamine. Thus, PE(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0) is considered to be a glycerophosphoethanolamine lipid molecule. PE(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0) can be biosynthesized from all-cis-docosa-4,7,10,13,16,19-hexaenoic acid.	http://www.hmdb.ca/metabolites/HMDB0011526

LysoPE(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0) ; HMDB11526	PE(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0), also known as lpe 22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0 or lysophosphatidylethanolamine(22:6/0:0), belongs to the class of organic compounds known as 1-acyl-sn-glycero-3-phosphoethanolamines. These are glycerophoethanolamines in which the glycerol is esterified with a fatty acid at O-1 position, and linked at position 3 to a phosphoethanolamine. Thus, PE(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0) is considered to be a glycerophosphoethanolamine lipid molecule. PE(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0) can be biosynthesized from all-cis-docosa-4,7,10,13,16,19-hexaenoic acid.	http://www.hmdb.ca/metabolites/HMDB0011526
Malondialdehyde ; HMDB0006112	Malondialdehyde, also known as 1,3-propanedial or MDA, belongs to the class of organic compounds known as 1,3-dicarbonyl compounds. These are carbonyl compounds with the generic formula O=C(R)C(H)C(R')=O, where R and R' can be any group. Malondialdehyde exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Malondialdehyde has been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid. Malondialdehyde is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0006112

Malondialdehyde ; HMDB06112	Malondialdehyde, also known as 1,3-propanedial or MDA, belongs to the class of organic compounds known as 1,3-dicarbonyl compounds. These are carbonyl compounds with the generic formula O=C(R)C(H)C(R')=O, where R and R' can be any group. Malondialdehyde exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Malondialdehyde has been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid. Malondialdehyde is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0006112
Malonic acid ; HMDB0000691	Malonic acid, also known as malonate or H2MALO, belongs to the class of organic compounds known as dicarboxylic acids and derivatives. These are organic compounds containing exactly two carboxylic acid groups. Malonic acid exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Malonic acid has been found in human liver and kidney tissues, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, malonic acid is primarily located in the cytoplasm. Malonic acid exists in all eukaryotes, ranging from yeast to humans. In humans, malonic acid is involved in the aspartate metabolism pathway and fatty acid biosynthesis pathway. Malonic acid has been found to be associated with the diseases known as combined malonic and methylmalonic aciduria; malonic acid has also been linked to the inborn metabolic disorders including malonyl-CoA decarboxylase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000691

Malonic acid ; HMDB00691	Malonic acid, also known as malonate or H2MALO, belongs to the class of organic compounds known as dicarboxylic acids and derivatives. These are organic compounds containing exactly two carboxylic acid groups. Malonic acid exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Malonic acid has been found in human liver and kidney tissues, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, malonic acid is primarily located in the cytoplasm. Malonic acid exists in all eukaryotes, ranging from yeast to humans. In humans, malonic acid is involved in the aspartate metabolism pathway and fatty acid biosynthesis pathway. Malonic acid has been found to be associated with the diseases known as combined malonic and methylmalonic aciduria; malonic acid has also been linked to the inborn metabolic disorders including malonyl-CoA decarboxylase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000691
Malonylcarnitine ; HMDB0002095	Malonylcarnitine belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, malonylcarnitine is considered to be a fatty ester lipid molecule. Malonylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. Malonylcarnitine has been detected in multiple biofluids, such as urine and blood. Within the cell, malonylcarnitine is primarily located in the membrane (predicted from logP) and cytoplasm. Malonylcarnitine can be biosynthesized from malonic acid.	http://www.hmdb.ca/metabolites/HMDB0002095

Malonylcarnitine ; HMDB02095	Malonylcarnitine belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, malonylcarnitine is considered to be a fatty ester lipid molecule. Malonylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. Malonylcarnitine has been detected in multiple biofluids, such as urine and blood. Within the cell, malonylcarnitine is primarily located in the membrane (predicted from logP) and cytoplasm. Malonylcarnitine can be biosynthesized from malonic acid.	http://www.hmdb.ca/metabolites/HMDB0002095
Maltotriose ; HMDB0001262	Maltotriose belongs to the class of organic compounds known as oligosaccharides. These are carbohydrates made up of 3 to 10 monosaccharide units linked to each other through glycosidic bonds. Maltotriose is soluble (in water) and a very weakly acidic compound (based on its pKa). Maltotriose has been found in human prostate, liver and kidney tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, maltotriose is primarily located in the cytoplasm and lysosome. In humans, maltotriose is involved in the galactose metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0001262
Mandelic acid ; HMDB0000703	Mandelic acid, also known as L-mandelate or (S)-mandelsaeure, belongs to the class of organic compounds known as benzene and substituted derivatives. These are aromatic compounds containing one monocyclic ring system consisting of benzene. Mandelic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Mandelic acid has been detected in multiple biofluids, such as feces and urine. Mandelic acid has been linked to the inborn metabolic disorders including phenylketonuria.	http://www.hmdb.ca/metabolites/HMDB0000703

Mandelic acid ; HMDB00703	Mandelic acid, also known as L-mandelate or (S)-mandelsaeure, belongs to the class of organic compounds known as benzene and substituted derivatives. These are aromatic compounds containing one monocyclic ring system consisting of benzene. Mandelic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Mandelic acid has been detected in multiple biofluids, such as feces and urine. Mandelic acid has been linked to the inborn metabolic disorders including phenylketonuria.	http://www.hmdb.ca/metabolites/HMDB0000703
Maslinic acid ; HMDB0002392	Maslinic acid, also known as crategolic acid or crategolate, belongs to the class of organic compounds known as triterpenoids. These are terpene molecules containing six isoprene units. Maslinic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Within the cell, maslinic acid is primarily located in the membrane (predicted from logP) and cytoplasm. Maslinic acid participates in a number of enzymatic reactions. In particular, maslinic acid can be biosynthesized from oleanane. Maslinic acid can also be converted into 2-O-caffeoyl maslinic acid and 3-O-[beta-D-glucopyranosyl]-28-O-[alpha-L-rhamnopyranosyl-(1->2)-beta-D-glucopyranosyl]maslinic acid.	http://www.hmdb.ca/metabolites/HMDB0002392

Maslinic acid ; HMDB02392	Maslinic acid, also known as crategolic acid or crategolate, belongs to the class of organic compounds known as triterpenoids. These are terpene molecules containing six isoprene units. Maslinic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Within the cell, maslinic acid is primarily located in the membrane (predicted from logP) and cytoplasm. Maslinic acid participates in a number of enzymatic reactions. In particular, maslinic acid can be biosynthesized from oleanane. Maslinic acid can also be converted into 2-O-caffeoyl maslinic acid and 3-O-[beta-D-glucopyranosyl]-28-O-[alpha-L-rhamnopyranosyl-(1->2)-beta-D-glucopyranosyl]maslinic acid.	http://www.hmdb.ca/metabolites/HMDB0002392
Mesaconic acid ; HMDB0000749	Citraconic acid, also known as methylmaleic acid or 2-methylmaleate, belongs to the class of organic compounds known as methyl-branched fatty acids. These are fatty acids with an acyl chain that has a methyl branch. Usually, they are saturated and contain only one or more methyl group. However, branches other than methyl may be present. Citraconic acid exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Citraconic acid has been detected in multiple biofluids, such as urine and blood. Within the cell, citraconic acid is primarily located in the cytoplasm and adiposome. Citraconic acid can be biosynthesized from maleic acid.	http://www.hmdb.ca/metabolites/HMDB0000749

Mesaconic acid ; HMDB00749	Citraconic acid, also known as methylmaleic acid or 2-methylmaleate, belongs to the class of organic compounds known as methyl-branched fatty acids. These are fatty acids with an acyl chain that has a methyl branch. Usually, they are saturated and contain only one or more methyl group. However, branches other than methyl may be present. Citraconic acid exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Citraconic acid has been detected in multiple biofluids, such as urine and blood. Within the cell, citraconic acid is primarily located in the cytoplasm and adiposome. Citraconic acid can be biosynthesized from maleic acid.	http://www.hmdb.ca/metabolites/HMDB0000749

Methionine sulfoxide ; HMDB0002005	Methionine sulfoxide, also known as met-so or S-oxide-methionine, belongs to the class of organic compounds known as alpha amino acids. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon). Methionine sulfoxide exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Methionine sulfoxide has been found in human epidermis tissue, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, methionine sulfoxide is primarily located in the cytoplasm and mitochondria. Methionine sulfoxide participates in a number of enzymatic reactions. In particular, Methionine sulfoxide can be biosynthesized from L-methionine through the action of the enzyme methionine-R-sulfoxide reductase B3. In addition, Methionine sulfoxide can be biosynthesized from L-methionine; which is catalyzed by the enzyme methionine-R-sulfoxide reductase b2, mitochondrial. In humans, methionine sulfoxide is involved in the methionine metabolism pathway. Methionine sulfoxide is also involved in several metabolic disorders, some of which include the hypermethioninemia pathway, glycine N-methyltransferase deficiency, methionine adenosyltransferase deficiency, and methylenetetrahydrofolate reductase deficiency (MTHFRD).	http://www.hmdb.ca/metabolites/HMDB0002005

Methionine sulfoxide ; HMDB02005	Methionine sulfoxide, also known as met-so or S-oxide-methionine, belongs to the class of organic compounds known as alpha amino acids. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon). Methionine sulfoxide exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Methionine sulfoxide has been found in human epidermis tissue, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, methionine sulfoxide is primarily located in the cytoplasm and mitochondria. Methionine sulfoxide participates in a number of enzymatic reactions. In particular, Methionine sulfoxide can be biosynthesized from L-methionine through the action of the enzyme methionine-R-sulfoxide reductase B3. In addition, Methionine sulfoxide can be biosynthesized from L-methionine; which is catalyzed by the enzyme methionine-R-sulfoxide reductase b2, mitochondrial. In humans, methionine sulfoxide is involved in the methionine metabolism pathway. Methionine sulfoxide is also involved in several metabolic disorders, some of which include the hypermethioninemia pathway, glycine N-methyltransferase deficiency, methionine adenosyltransferase deficiency, and methylenetetrahydrofolate reductase deficiency (MTHFRD).	http://www.hmdb.ca/metabolites/HMDB0002005
Methylcysteine ; HMDB0002108	Methylcysteine belongs to the class of organic compounds known as l-cysteine-s-conjugates. L-cysteine-S-conjugates are compounds containing L-cysteine where the thio-group is conjugated. Methylcysteine is soluble (in water) and a moderately acidic compound (based on its pKa). Methylcysteine has been detected in multiple biofluids, such as urine and blood. Outside of the human body, methylcysteine can be found in soft-necked garlic. This makes methylcysteine a potential biomarker for the consumption of this food product.	http://www.hmdb.ca/metabolites/HMDB0002108

Methylcysteine ; HMDB02108	Methylcysteine belongs to the class of organic compounds known as l-cysteine-s-conjugates. L-cysteine-S-conjugates are compounds containing L-cysteine where the thio-group is conjugated. Methylcysteine is soluble (in water) and a moderately acidic compound (based on its pKa). Methylcysteine has been detected in multiple biofluids, such as urine and blood. Outside of the human body, methylcysteine can be found in soft-necked garlic. This makes methylcysteine a potential biomarker for the consumption of this food product.	http://www.hmdb.ca/metabolites/HMDB0002108
Methylimidazoleacetic acid ; HMDB0002820	Methylimidazoleacetic acid, also known as 1-methylimidazole-4-acetate or miaa, belongs to the class of organic compounds known as imidazolyl carboxylic acids and derivatives. These are organic compounds containing a carboxylic acid chain (of at least 2 carbon atoms) linked to an imidazole ring. Methylimidazoleacetic acid is slightly soluble (in water) and a weakly acidic compound (based on its pKa). Methylimidazoleacetic acid has been found in human brain tissue, and has also been primarily detected in saliva, urine, blood, and cerebrospinal fluid. Methylimidazoleacetic acid can be biosynthesized from methylimidazole acetaldehyde through its interaction with the enzyme aldehyde dehydrogenase, dimeric nadp-preferring. In humans, methylimidazoleacetic acid is involved in the histidine metabolism pathway. Methylimidazoleacetic acid is also involved in the metabolic disorder called the histidinemia pathway.	http://www.hmdb.ca/metabolites/HMDB0002820

Methylimidazoleacetic acid ; HMDB02820	Methylimidazoleacetic acid, also known as 1-methylimidazole-4-acetate or miaa, belongs to the class of organic compounds known as imidazolyl carboxylic acids and derivatives. These are organic compounds containing a carboxylic acid chain (of at least 2 carbon atoms) linked to an imidazole ring. Methylimidazoleacetic acid is slightly soluble (in water) and a weakly acidic compound (based on its pKa). Methylimidazoleacetic acid has been found in human brain tissue, and has also been primarily detected in saliva, urine, blood, and cerebrospinal fluid. Methylimidazoleacetic acid can be biosynthesized from methylimidazole acetaldehyde through its interaction with the enzyme aldehyde dehydrogenase, dimeric nadp-preferring. In humans, methylimidazoleacetic acid is involved in the histidine metabolism pathway. Methylimidazoleacetic acid is also involved in the metabolic disorder called the histidinemia pathway.	http://www.hmdb.ca/metabolites/HMDB0002820

Methylmalonic acid ; HMDB0000202	Methylmalonic acid, also known as 2-methylmalonate or isosuccinic acid, belongs to the class of organic compounds known as dicarboxylic acids and derivatives. These are organic compounds containing exactly two carboxylic acid groups. Methylmalonic acid exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Methylmalonic acid has been found in human liver and kidney tissues, and has also been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid. Within the cell, methylmalonic acid is primarily located in the cytoplasm. Methylmalonic acid exists in all eukaryotes, ranging from yeast to humans. In humans, methylmalonic acid is involved in the vitamin K metabolism pathway, the propanoate metabolism pathway, and the valine, leucine and isoleucine degradation pathway. Methylmalonic acid is also involved in several metabolic disorders, some of which include malonyl-CoA decarboxylase deficiency, the 3-methylglutaconic aciduria type III pathway, methylmalonate semialdehyde dehydrogenase deficiency, and 3-hydroxy-3-methylglutaryl-CoA lyase deficiency. Methylmalonic acid is a potentially toxic compound. Methylmalonic acid has been found to be associated with several diseases known as methylmalonic aciduria mitochondrial encephelopathy leigh-like, cobalamin f disease (cblf), and alzheimer's disease; methylmalonic acid has also been linked to several inborn metabolic disorders including transcobalamin II deficiency and cobalamin malabsorption.	http://www.hmdb.ca/metabolites/HMDB0000202

Methylmalonic acid ; HMDB00202	Methylmalonic acid, also known as 2-methylmalonate or isosuccinic acid, belongs to the class of organic compounds known as dicarboxylic acids and derivatives. These are organic compounds containing exactly two carboxylic acid groups. Methylmalonic acid exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Methylmalonic acid has been found in human liver and kidney tissues, and has also been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid. Within the cell, methylmalonic acid is primarily located in the cytoplasm. Methylmalonic acid exists in all eukaryotes, ranging from yeast to humans. In humans, methylmalonic acid is involved in the vitamin K metabolism pathway, the propanoate metabolism pathway, and the valine, leucine and isoleucine degradation pathway. Methylmalonic acid is also involved in several metabolic disorders, some of which include malonyl-CoA decarboxylase deficiency, the 3-methylglutaconic aciduria type III pathway, methylmalonate semialdehyde dehydrogenase deficiency, and 3-hydroxy-3-methylglutaryl-CoA lyase deficiency. Methylmalonic acid is a potentially toxic compound. Methylmalonic acid has been found to be associated with several diseases known as methylmalonic aciduria mitochondrial encephelopathy leigh-like, cobalamin f disease (cblf), and alzheimer's disease; methylmalonic acid has also been linked to several inborn metabolic disorders including transcobalamin II deficiency and cobalamin malabsorption.	http://www.hmdb.ca/metabolites/HMDB0000202

Methylmalonylcarnitine ; HMDB0013133	3-Hydroxy-9Z-octadecenoylcarnitine belongs to the class of organic compounds known as beta hydroxy acids and derivatives. Beta hydroxy acids and derivatives are compounds containing a carboxylic acid substituted with a hydroxyl group on the C3 carbon atom. 3-Hydroxy-9Z-octadecenoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule.	http://www.hmdb.ca/metabolites/HMDB0013133
Methylmalonylcarnitine ; HMDB13133	3-Hydroxy-9Z-octadecenoylcarnitine belongs to the class of organic compounds known as beta hydroxy acids and derivatives. Beta hydroxy acids and derivatives are compounds containing a carboxylic acid substituted with a hydroxyl group on the C3 carbon atom. 3-Hydroxy-9Z-octadecenoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule.	http://www.hmdb.ca/metabolites/HMDB0013133
Methylsuccinic acid ; HMDB0001844	Methylsuccinic acid, also known as methylsuccinate or 2-methylbutanedioate, belongs to the class of organic compounds known as methyl-branched fatty acids. These are fatty acids with an acyl chain that has a methyl branch. Usually, they are saturated and contain only one or more methyl group. However, branches other than methyl may be present. Methylsuccinic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Methylsuccinic acid has been primarily detected in saliva, feces, urine, and blood. Within the cell, methylsuccinic acid is primarily located in the cytoplasm and adiposome. Methylsuccinic acid has been linked to several inborn metabolic disorders including short chain acyl-CoA dehydrogenase deficiency, isovaleric acidemia, ethylmalonic encephalopathy, and medium chain acyl-CoA dehydrogenase deficiency.	http://www.hmdb.ca/metabolites/HMDB0001844

Metoprolol ; HMDB0001932	Metoprolol, also known as betaloc or (RS)-metoprolol, belongs to the class of organic compounds known as tyrosols and derivatives. Tyrosols and derivatives are compounds containing a hydroxyethyl group attached to the C4 carbon of a phenol group. Metoprolol is a drug which is used for the management of acute myocardial infarction, angina pectoris, heart failure and mild to moderate hypertension. may be used to treat supraventricular and tachyarrhythmias and as prophylaxis for migraine headaches. Metoprolol is considered to be a practically insoluble (in water) and relatively neutral molecule. Metoprolol has been found in human liver tissue, and has also been detected in multiple biofluids, such as feces and blood. Within the cell, metoprolol is primarily located in the membrane (predicted from logP). In humans, metoprolol is involved in the metoprolol action pathway.	http://www.hmdb.ca/metabolites/HMDB0001932
Metoprolol ; HMDB01932	Metoprolol, also known as betaloc or (RS)-metoprolol, belongs to the class of organic compounds known as tyrosols and derivatives. Tyrosols and derivatives are compounds containing a hydroxyethyl group attached to the C4 carbon of a phenol group. Metoprolol is a drug which is used for the management of acute myocardial infarction, angina pectoris, heart failure and mild to moderate hypertension. may be used to treat supraventricular and tachyarrhythmias and as prophylaxis for migraine headaches. Metoprolol is considered to be a practically insoluble (in water) and relatively neutral molecule. Metoprolol has been found in human liver tissue, and has also been detected in multiple biofluids, such as feces and blood. Within the cell, metoprolol is primarily located in the membrane (predicted from logP). In humans, metoprolol is involved in the metoprolol action pathway.	http://www.hmdb.ca/metabolites/HMDB0001932

MG(14:1(9Z)/0:0/0:0) ; HMDB0011562	MG(14:1(9Z)/0:0/0:0), also known as a-monoacylglycerol or mag(14:1/0:0), belongs to the class of organic compounds known as 1-monoacylglycerols. These are monoacylglycerols containing a glycerol acylated at the 1-position. MG(14:1(9Z)/0:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. MG(14:1(9Z)/0:0/0:0) has been found throughout all human tissues. Within the cell, MG(14:1(9Z)/0:0/0:0) is primarily located in the membrane (predicted from logP). MG(14:1(9Z)/0:0/0:0) exists in all eukaryotes, ranging from yeast to humans. MG(14:1(9Z)/0:0/0:0) participates in a number of enzymatic reactions. In particular, Palmitic acid and MG(14:1(9Z)/0:0/0:0) can be biosynthesized from DG(10:0/16:0/0:0) through the action of the enzyme diacylglycerol lipase. Furthermore, MG(14:1(9Z)/0:0/0:0) can be converted into palmitic acid and glycerol through its interaction with the enzyme monoglyceride lipase. Furthermore, Palmitic acid and MG(14:1(9Z)/0:0/0:0) can be biosynthesized from DG(10:0/16:1(9Z)/0:0) through its interaction with the enzyme diacylglycerol lipase. Furthermore, MG(14:1(9Z)/0:0/0:0) can be converted into palmitic acid and glycerol through the action of the enzyme monoglyceride lipase. Furthermore, Palmitic acid and MG(14:1(9Z)/0:0/0:0) can be biosynthesized from DG(10:0/18:0/0:0); which is catalyzed by the enzyme diacylglycerol lipase. Finally, MG(14:1(9Z)/0:0/0:0) can be converted into palmitic acid and glycerol; which is mediated by the enzyme monoglyceride lipase.	http://www.hmdb.ca/metabolites/HMDB0011562

MG(14:1(9Z)/0:0/0:0) ; HMDB11562	MG(14:1(9Z)/0:0/0:0), also known as a-monoacylglycerol or mag(14:1/0:0), belongs to the class of organic compounds known as 1-monoacylglycerols. These are monoacylglycerols containing a glycerol acylated at the 1-position. MG(14:1(9Z)/0:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. MG(14:1(9Z)/0:0/0:0) has been found throughout all human tissues. Within the cell, MG(14:1(9Z)/0:0/0:0) is primarily located in the membrane (predicted from logP). MG(14:1(9Z)/0:0/0:0) exists in all eukaryotes, ranging from yeast to humans. MG(14:1(9Z)/0:0/0:0) participates in a number of enzymatic reactions. In particular, Palmitic acid and MG(14:1(9Z)/0:0/0:0) can be biosynthesized from DG(10:0/16:0/0:0) through the action of the enzyme diacylglycerol lipase. Furthermore, MG(14:1(9Z)/0:0/0:0) can be converted into palmitic acid and glycerol through its interaction with the enzyme monoglyceride lipase. Furthermore, Palmitic acid and MG(14:1(9Z)/0:0/0:0) can be biosynthesized from DG(10:0/16:1(9Z)/0:0) through its interaction with the enzyme diacylglycerol lipase. Furthermore, MG(14:1(9Z)/0:0/0:0) can be converted into palmitic acid and glycerol through the action of the enzyme monoglyceride lipase. Furthermore, Palmitic acid and MG(14:1(9Z)/0:0/0:0) can be biosynthesized from DG(10:0/18:0/0:0); which is catalyzed by the enzyme diacylglycerol lipase. Finally, MG(14:1(9Z)/0:0/0:0) can be converted into palmitic acid and glycerol; which is mediated by the enzyme monoglyceride lipase.	http://www.hmdb.ca/metabolites/HMDB0011562

MG(18:0/0:0/0:0) ; HMDB0011131	MG(18:0/0:0/0:0), also known as (S)-1-monostearin or 1-stearoyl-glycerol, belongs to the class of organic compounds known as 1-monoacylglycerols. These are monoacylglycerols containing a glycerol acylated at the 1-position. MG(18:0/0:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. MG(18:0/0:0/0:0) has been detected in multiple biofluids, such as feces and sweat. Within the cell, MG(18:0/0:0/0:0) is primarily located in the membrane (predicted from logP).	http://www.hmdb.ca/metabolites/HMDB0011131
MG(18:0/0:0/0:0) ; HMDB11131	MG(18:0/0:0/0:0), also known as (S)-1-monostearin or 1-stearoyl-glycerol, belongs to the class of organic compounds known as 1-monoacylglycerols. These are monoacylglycerols containing a glycerol acylated at the 1-position. MG(18:0/0:0/0:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. MG(18:0/0:0/0:0) has been detected in multiple biofluids, such as feces and sweat. Within the cell, MG(18:0/0:0/0:0) is primarily located in the membrane (predicted from logP).	http://www.hmdb.ca/metabolites/HMDB0011131

myo-Inositol ; HMDB0000211	Myoinositol, also known as bios i or cyclohexitol, belongs to the class of organic compounds known as cyclohexanols. Cyclohexanols are compounds containing an alcohol group attached to a cyclohexane ring. Myoinositol is soluble (in water) and a very weakly acidic compound (based on its pKa). Myoinositol has been found throughout most human tissues, and has also been detected in most biofluids, including sweat, blood, saliva, and breast milk. Within the cell, myoinositol is primarily located in the myelin sheath. Myoinositol exists in all eukaryotes, ranging from yeast to humans. Myoinositol participates in a number of enzymatic reactions. In particular, D-Galactose and myoinositol can be converted into galactinol through the action of the enzyme Alpha-galactosidase a. Furthermore, Myoinositol can be biosynthesized from D-myo-inositol 4-phosphate through the action of the enzyme inositol monophosphatase 1. Furthermore, Myoinositol can be biosynthesized from D-myo-inositol 4-phosphate through the action of the enzyme inositol monophosphatase 1. Finally, Myoinositol can be biosynthesized from myo-inositol 1-phosphate; which is catalyzed by the enzyme inositol monophosphatase 1. In humans, myoinositol is involved in the galactose metabolism pathway, the inositol phosphate metabolism pathway, the inositol metabolism pathway, and the phosphatidylinositol phosphate metabolism pathway. Myoinositol is also involved in a couple of metabolic disorders, which include the galactosemia pathway and the joubert syndrome pathway.	http://www.hmdb.ca/metabolites/HMDB0000211

myo-Inositol ; HMDB00211	Myoinositol, also known as bios i or cyclohexitol, belongs to the class of organic compounds known as cyclohexanols. Cyclohexanols are compounds containing an alcohol group attached to a cyclohexane ring. Myoinositol is soluble (in water) and a very weakly acidic compound (based on its pKa). Myoinositol has been found throughout most human tissues, and has also been detected in most biofluids, including sweat, blood, saliva, and breast milk. Within the cell, myoinositol is primarily located in the myelin sheath. Myoinositol exists in all eukaryotes, ranging from yeast to humans. Myoinositol participates in a number of enzymatic reactions. In particular, D-Galactose and myoinositol can be converted into galactinol through the action of the enzyme Alpha-galactosidase a. Furthermore, Myoinositol can be biosynthesized from D-myo-inositol 4-phosphate through the action of the enzyme inositol monophosphatase 1. Furthermore, Myoinositol can be biosynthesized from D-myo-inositol 4-phosphate through the action of the enzyme inositol monophosphatase 1. Finally, Myoinositol can be biosynthesized from myo-inositol 1-phosphate; which is catalyzed by the enzyme inositol monophosphatase 1. In humans, myoinositol is involved in the galactose metabolism pathway, the inositol phosphate metabolism pathway, the inositol metabolism pathway, and the phosphatidylinositol phosphate metabolism pathway. Myoinositol is also involved in a couple of metabolic disorders, which include the galactosemia pathway and the joubert syndrome pathway.	http://www.hmdb.ca/metabolites/HMDB0000211

Myristic acid ; HMDB0000806	Myristic acid, also known as 14 or tetradecanoate, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Myristic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Myristic acid has been found throughout most human tissues, and has also been detected in most biofluids, including feces, blood, urine, and cerebrospinal fluid. Within the cell, myristic acid is primarily located in the cytoplasm, membrane (predicted from logP) and adiposome. Myristic acid exists in all eukaryotes, ranging from yeast to humans. Myristic acid participates in a number of enzymatic reactions. In particular, Myristic acid can be biosynthesized from trans-tetra-dec-2-enoic acid through its interaction with the enzyme fatty acid synthase. enoyl reductase domain. Furthermore, Myristic acid and malonic acid can be converted into 3-oxohexadecanoic acid; which is catalyzed by the enzyme fatty acid synthase. Beta ketoacyl synthase domain. Furthermore, Myristic acid can be biosynthesized from trans-tetra-dec-2-enoic acid; which is mediated by the enzyme fatty acid synthase. enoyl reductase domain. Finally, Myristic acid and malonic acid can be converted into 3-oxohexadecanoic acid through its interaction with the enzyme fatty acid synthase. Beta ketoacyl synthase domain. In humans, myristic acid is involved in fatty acid biosynthesis pathway. Outside of the human body, myristic acid can be found in a number of food items such as lotus, buffalo currant, dill, and salmonberry. This makes myristic acid a potential biomarker for the consumption of these food products. Myristic acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000806

Myristic acid ; HMDB00806	Myristic acid, also known as 14 or tetradecanoate, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Myristic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Myristic acid has been found throughout most human tissues, and has also been detected in most biofluids, including feces, blood, urine, and cerebrospinal fluid. Within the cell, myristic acid is primarily located in the cytoplasm, membrane (predicted from logP) and adiposome. Myristic acid exists in all eukaryotes, ranging from yeast to humans. Myristic acid participates in a number of enzymatic reactions. In particular, Myristic acid can be biosynthesized from trans-tetra-dec-2-enoic acid through its interaction with the enzyme fatty acid synthase. enoyl reductase domain. Furthermore, Myristic acid and malonic acid can be converted into 3-oxohexadecanoic acid; which is catalyzed by the enzyme fatty acid synthase. Beta ketoacyl synthase domain. Furthermore, Myristic acid can be biosynthesized from trans-tetra-dec-2-enoic acid; which is mediated by the enzyme fatty acid synthase. enoyl reductase domain. Finally, Myristic acid and malonic acid can be converted into 3-oxohexadecanoic acid through its interaction with the enzyme fatty acid synthase. Beta ketoacyl synthase domain. In humans, myristic acid is involved in fatty acid biosynthesis pathway. Outside of the human body, myristic acid can be found in a number of food items such as lotus, buffalo currant, dill, and salmonberry. This makes myristic acid a potential biomarker for the consumption of these food products. Myristic acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000806

Myristoleic acid ; HMDB0002000	Myristoleic acid, also known as 9-tetradecenoate or myristoleate, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Myristoleic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Myristoleic acid has been found in human adipose tissue tissue, and has also been primarily detected in feces, saliva, blood, and urine. Within the cell, myristoleic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. Myristoleic acid exists in all eukaryotes, ranging from yeast to humans. Myristoleic acid is also a parent compound for other transformation products, including but not limited to, 1-[(9Z)-hexadecenoyl]-2-[(9Z)-tetradecenoyl]-sn-glycero-3-phosphocholine, O-[(9Z)-tetradecenoyl]-L-carnitine, and 1,2-dimyristoleoyl-sn-glycerol. Outside of the human body, myristoleic acid can be found in a number of food items such as lard, sorrel, walnut, and baby food. This makes myristoleic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0002000

Myristoleic acid ; HMDB02000	Myristoleic acid, also known as 9-tetradecenoate or myristoleate, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Myristoleic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Myristoleic acid has been found in human adipose tissue tissue, and has also been primarily detected in feces, saliva, blood, and urine. Within the cell, myristoleic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. Myristoleic acid exists in all eukaryotes, ranging from yeast to humans. Myristoleic acid is also a parent compound for other transformation products, including but not limited to, 1-[(9Z)-hexadecenoyl]-2-[(9Z)-tetradecenoyl]-sn-glycero-3-phosphocholine, O-[(9Z)-tetradecenoyl]-L-carnitine, and 1,2-dimyristoleoyl-sn-glycerol. Outside of the human body, myristoleic acid can be found in a number of food items such as lard, sorrel, walnut, and baby food. This makes myristoleic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0002000
N-(3-acetamidopropyl)pyrrolidin-2-one ; HMDB0061384	N-(3-Acetamidopropyl)pyrrolidin-2-one, also known as N-acetylisoputreanine-g-lactam or acisoga, belongs to the class of organic compounds known as n-alkylpyrrolidines. N-alkylpyrrolidines are compounds containing a pyrrolidine moiety that is substituted at the N1-position with an alkyl group. Pyrrolidine is a five-membered saturated aliphatic heterocycle with one nitrogen atom and four carbon atoms. N-(3-Acetamidopropyl)pyrrolidin-2-one is soluble (in water) and an extremely weak acidic (essentially neutral) compound (based on its pKa). N-(3-Acetamidopropyl)pyrrolidin-2-one has been primarily detected in urine.	http://www.hmdb.ca/metabolites/HMDB0061384

N-a-Acetyl-L-arginine ; HMDB0004620	N-a-Acetyl-L-arginine, also known as N-ac-L-arg-OH or N-alpha-acetylarginine, belongs to the class of organic compounds known as n-acyl-l-alpha-amino acids. These are n-acylated alpha amino acids which have the L-configuration of the alpha-carbon atom. N-a-Acetyl-L-arginine is considered to be a practically insoluble (in water) and relatively neutral molecule. N-a-Acetyl-L-arginine has been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid. Outside of the human body, N-a-acetyl-L-arginine can be found in apple and loquat. This makes N-a-acetyl-L-arginine a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0004620
N-a-Acetyl-L-arginine ; HMDB04620	N-a-Acetyl-L-arginine, also known as N-ac-L-arg-OH or N-alpha-acetylarginine, belongs to the class of organic compounds known as n-acyl-l-alpha-amino acids. These are n-acylated alpha amino acids which have the L-configuration of the alpha-carbon atom. N-a-Acetyl-L-arginine is considered to be a practically insoluble (in water) and relatively neutral molecule. N-a-Acetyl-L-arginine has been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid. Outside of the human body, N-a-acetyl-L-arginine can be found in apple and loquat. This makes N-a-acetyl-L-arginine a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0004620

N-Acetyl-b-D-galactosamine ; HMDB0000853	N-Acetyl-b-D-galactosamine, also known as beta-galnac or -galnac, belongs to the class of organic compounds known as n-acyl-alpha-hexosamines. These are carbohydrate derivatives containing a hexose moiety in which the oxygen atom is replaced by an n-acyl group. N-Acetyl-b-D-galactosamine is soluble (in water) and a very weakly acidic compound (based on its pKa). N-Acetyl-b-D-galactosamine can be converted into 1beta-glutathionylseleno-N-acetyl-D-galactosamine. Outside of the human body, N-acetyl-b-D-galactosamine can be found in a number of food items such as opium poppy, spirulina, komatsuna, and orange bell pepper. This makes N-acetyl-b-D-galactosamine a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000853
N-Acetyl-b-D-galactosamine ; HMDB00853	N-Acetyl-b-D-galactosamine, also known as beta-galnac or -galnac, belongs to the class of organic compounds known as n-acyl-alpha-hexosamines. These are carbohydrate derivatives containing a hexose moiety in which the oxygen atom is replaced by an n-acyl group. N-Acetyl-b-D-galactosamine is soluble (in water) and a very weakly acidic compound (based on its pKa). N-Acetyl-b-D-galactosamine can be converted into 1beta-glutathionylseleno-N-acetyl-D-galactosamine. Outside of the human body, N-acetyl-b-D-galactosamine can be found in a number of food items such as opium poppy, spirulina, komatsuna, and orange bell pepper. This makes N-acetyl-b-D-galactosamine a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000853

N-Acetyl-beta-alanine ; HMDB0061880	N-Acetyl-beta-alanine, also known as 3-(acetylamino)propanoate, belongs to the class of organic compounds known as carboxylic acids. Carboxylic acids are compounds containing a carboxylic acid group with the formula -C(=O)OH. N-Acetyl-beta-alanine is slightly soluble (in water) and a weakly acidic compound (based on its pKa). N-Acetyl-beta-alanine has been primarily detected in saliva.	http://www.hmdb.ca/metabolites/HMDB0061880
N-Acetyl-L-alanine ; HMDB0000766	N-Acetyl-L-alanine, also known as ac-ala-OH or 2-acetamidopropionate, belongs to the class of organic compounds known as n-acyl-l-alpha-amino acids. These are n-acylated alpha amino acids which have the L-configuration of the alpha-carbon atom. N-Acetyl-L-alanine is soluble (in water) and a weakly acidic compound (based on its pKa). N-Acetyl-L-alanine has been detected in multiple biofluids, such as feces and urine. Within the cell, N-acetyl-L-alanine is primarily located in the cytoplasm. N-Acetyl-L-alanine exists in all eukaryotes, ranging from yeast to humans.	http://www.hmdb.ca/metabolites/HMDB0000766
N-Acetyl-L-alanine ; HMDB00766	N-Acetyl-L-alanine, also known as ac-ala-OH or 2-acetamidopropionate, belongs to the class of organic compounds known as n-acyl-l-alpha-amino acids. These are n-acylated alpha amino acids which have the L-configuration of the alpha-carbon atom. N-Acetyl-L-alanine is soluble (in water) and a weakly acidic compound (based on its pKa). N-Acetyl-L-alanine has been detected in multiple biofluids, such as feces and urine. Within the cell, N-acetyl-L-alanine is primarily located in the cytoplasm. N-Acetyl-L-alanine exists in all eukaryotes, ranging from yeast to humans.	http://www.hmdb.ca/metabolites/HMDB0000766

N-Acetyl-L-aspartic acid ; HMDB0000812	N-Acetyl-L-aspartic acid, also known as N-acetylaspartate or NAA, belongs to the class of organic compounds known as aspartic acid and derivatives. Aspartic acid and derivatives are compounds containing an aspartic acid or a derivative thereof resulting from reaction of aspartic acid at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. N-Acetyl-L-aspartic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). N-Acetyl-L-aspartic acid has been found in human brain and prostate tissues, and has also been detected in most biofluids, including urine, feces, blood, and saliva. Within the cell, N-acetyl-L-aspartic acid is primarily located in the cytoplasm, mitochondria and myelin sheath. N-Acetyl-L-aspartic acid can be converted into acetic acid and L-aspartic acid through its interaction with the enzyme aspartoacylase. In humans, N-acetyl-L-aspartic acid is involved in the aspartate metabolism pathway. N-Acetyl-L-aspartic acid is also involved in a couple of metabolic disorders, which include the canavan disease pathway and the hypoacetylaspartia pathway. N-Acetyl-L-aspartic acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000812

N-Acetyl-L-aspartic acid ; HMDB00812	N-Acetyl-L-aspartic acid, also known as N-acetylaspartate or NAA, belongs to the class of organic compounds known as aspartic acid and derivatives. Aspartic acid and derivatives are compounds containing an aspartic acid or a derivative thereof resulting from reaction of aspartic acid at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. N-Acetyl-L-aspartic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). N-Acetyl-L-aspartic acid has been found in human brain and prostate tissues, and has also been detected in most biofluids, including urine, feces, blood, and saliva. Within the cell, N-acetyl-L-aspartic acid is primarily located in the cytoplasm, mitochondria and myelin sheath. N-Acetyl-L-aspartic acid can be converted into acetic acid and L-aspartic acid through its interaction with the enzyme aspartoacylase. In humans, N-acetyl-L-aspartic acid is involved in the aspartate metabolism pathway. N-Acetyl-L-aspartic acid is also involved in a couple of metabolic disorders, which include the canavan disease pathway and the hypoacetylaspartia pathway. N-Acetyl-L-aspartic acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000812
N-Acetyl-L-methionine ; HMDB0011745	N-Acetyl-L-methionine, also known as N-ac-L-methionine or hepsan, belongs to the class of organic compounds known as methionine and derivatives. Methionine and derivatives are compounds containing methionine or a derivative thereof resulting from reaction of methionine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. N-Acetyl-L-methionine exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). N-Acetyl-L-methionine has been detected in multiple biofluids, such as feces and saliva.	http://www.hmdb.ca/metabolites/HMDB0011745

N-Acetyl-L-methionine ; HMDB11745	N-Acetyl-L-methionine, also known as N-ac-L-methionine or hepsan, belongs to the class of organic compounds known as methionine and derivatives. Methionine and derivatives are compounds containing methionine or a derivative thereof resulting from reaction of methionine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. N-Acetyl-L-methionine exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). N-Acetyl-L-methionine has been detected in multiple biofluids, such as feces and saliva.	http://www.hmdb.ca/metabolites/HMDB0011745
N-Acetyl-L-phenylalanine ; HMDB0000512	N-Acetyl-D-phenylalanine belongs to the class of organic compounds known as phenylalanine and derivatives. Phenylalanine and derivatives are compounds containing phenylalanine or a derivative thereof resulting from reaction of phenylalanine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. N-Acetyl-D-phenylalanine exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. N-Acetyl-D-phenylalanine has been detected in multiple biofluids, such as feces and saliva. Within the cell, N-acetyl-D-phenylalanine is primarily located in the cytoplasm. N-Acetyl-D-phenylalanine exists in all eukaryotes, ranging from yeast to humans.	http://www.hmdb.ca/metabolites/HMDB0000512

N-Acetyl-L-tyrosine ; HMDB0000866	N-Acetyl-L-tyrosine belongs to the class of organic compounds known as tyrosine and derivatives. Tyrosine and derivatives are compounds containing tyrosine or a derivative thereof resulting from reaction of tyrosine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. N-Acetyl-L-tyrosine exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). N-Acetyl-L-tyrosine has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, N-acetyl-L-tyrosine is primarily located in the cytoplasm. N-Acetyl-L-tyrosine has been found to be associated with the diseases known as preterm birth; n-acetyl-l-tyrosine has also been linked to several inborn metabolic disorders including aromatic l-amino acid decarboxylase deficiency and tyrosinemia I.	http://www.hmdb.ca/metabolites/HMDB0000866
N-Acetylasparagine ; HMDB0006028	N-Acetylasparagine, also known as acasn, belongs to the class of organic compounds known as asparagine and derivatives. Asparagine and derivatives are compounds containing asparagine or a derivative thereof resulting from reaction of asparagine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. N-Acetylasparagine is soluble (in water) and a weakly acidic compound (based on its pKa).	http://www.hmdb.ca/metabolites/HMDB0006028

N-Acetylglutamic acid ; HMDB0001138	N-Acetylglutamic acid, also known as N-acetylglutamate or ac-glu-OH, belongs to the class of organic compounds known as glutamic acid and derivatives. Glutamic acid and derivatives are compounds containing glutamic acid or a derivative thereof resulting from reaction of glutamic acid at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. N-Acetylglutamic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). N-Acetylglutamic acid has been found in human liver tissue, and has also been detected in multiple biofluids, such as saliva, feces, and urine. Within the cell, N-acetylglutamic acid is primarily located in the mitochondria and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0001138
N-Acetylglutamic acid ; HMDB01138	N-Acetylglutamic acid, also known as N-acetylglutamate or ac-glu-OH, belongs to the class of organic compounds known as glutamic acid and derivatives. Glutamic acid and derivatives are compounds containing glutamic acid or a derivative thereof resulting from reaction of glutamic acid at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. N-Acetylglutamic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). N-Acetylglutamic acid has been found in human liver tissue, and has also been detected in multiple biofluids, such as saliva, feces, and urine. Within the cell, N-acetylglutamic acid is primarily located in the mitochondria and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0001138

N-Acetylglutamine ; HMDB0006029	N-Acetyl-glutamine, also known as aceglutamide or glcnac, belongs to the class of organic compounds known as glutamine and derivatives. Glutamine and derivatives are compounds containing glutamine or a derivative thereof resulting from reaction of glutamine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. N-Acetyl-glutamine exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). N-Acetyl-glutamine has been primarily detected in urine. N-Acetyl-glutamine exists in all eukaryotes, ranging from yeast to humans.	http://www.hmdb.ca/metabolites/HMDB0006029
N-Acetylglutamine ; HMDB06029	N-Acetyl-glutamine, also known as aceglutamide or glcnac, belongs to the class of organic compounds known as glutamine and derivatives. Glutamine and derivatives are compounds containing glutamine or a derivative thereof resulting from reaction of glutamine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. N-Acetyl-glutamine exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). N-Acetyl-glutamine has been primarily detected in urine. N-Acetyl-glutamine exists in all eukaryotes, ranging from yeast to humans.	http://www.hmdb.ca/metabolites/HMDB0006029
N-Acetylhistamine ; HMDB0013253	N-Acetylhistamine , also known as AHN, belongs to the class of organic compounds known as n-acetyl-2-arylethylamines. N-acetyl-2-arylethylamines are compounds containing an acetamide group that is N-linked to an arylethylamine. N-Acetylhistamine is slightly soluble (in water) and a very weakly acidic compound (based on its pKa). N-Acetylhistamine can be biosynthesized from histamine.	http://www.hmdb.ca/metabolites/HMDB0013253

N-Acetylhistamine ; HMDB13253	N-Acetylhistamine , also known as AHN, belongs to the class of organic compounds known as n-acetyl-2-arylethylamines. N-acetyl-2-arylethylamines are compounds containing an acetamide group that is N-linked to an arylethylamine. N-Acetylhistamine is slightly soluble (in water) and a very weakly acidic compound (based on its pKa). N-Acetylhistamine can be biosynthesized from histamine.	http://www.hmdb.ca/metabolites/HMDB0013253
N-Acetylhistidine ; HMDB0032055	N-Acetylhistidine belongs to the class of organic compounds known as histidine and derivatives. Histidine and derivatives are compounds containing cysteine or a derivative thereof resulting from reaction of cysteine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. N-Acetylhistidine exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Within the cell, N-acetylhistidine is primarily located in the cytoplasm. Outside of the human body, N-acetylhistidine can be found in fishes. This makes N-acetylhistidine a potential biomarker for the consumption of this food product.	http://www.hmdb.ca/metabolites/HMDB0032055
N-Acetylisoleucine ; HMDB0061684	N-Acetylisoleucine belongs to the class of organic compounds known as isoleucine and derivatives. Isoleucine and derivatives are compounds containing isoleucine or a derivative thereof resulting from reaction of isoleucine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. N-Acetylisoleucine is soluble (in water) and a weakly acidic compound (based on its pKa). N-Acetylisoleucine has been primarily detected in feces.	http://www.hmdb.ca/metabolites/HMDB0061684

N-Acetylleucine ; HMDB0011756	N-Acetylleucine, also known as N-acetyl-leu or tanganil, belongs to the class of organic compounds known as leucine and derivatives. Leucine and derivatives are compounds containing leucine or a derivative thereof resulting from reaction of leucine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. N-Acetylleucine is soluble (in water) and a weakly acidic compound (based on its pKa). N-Acetylleucine has been detected in multiple biofluids, such as feces and saliva.	http://www.hmdb.ca/metabolites/HMDB0011756

N-Acetylneuraminic acid ; HMDB0000230	N-Acetylneuraminic acid, also known as N-acetylneuraminate or beta-neu5ac, belongs to the class of organic compounds known as n-acylneuraminic acids. These are neuraminic acids carrying an N-acyl substituent. N-Acetylneuraminic acid exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). N-Acetylneuraminic acid has been found throughout most human tissues, and has also been detected in most biofluids, including breast milk, feces, cerebrospinal fluid, and blood. Within the cell, N-acetylneuraminic acid is primarily located in the cytoplasm, nucleus, lysosome and myelin sheath. N-Acetylneuraminic acid participates in a number of enzymatic reactions. In particular, N-Acetylneuraminic acid can be biosynthesized from N-acetylmannosamine and phosphoenolpyruvic acid through its interaction with the enzyme sialic acid synthase. In addition, N-Acetylneuraminic acid can be converted into N-acetylmannosamine and pyruvic acid; which is mediated by the enzyme N-acetylneuraminate lyase. In humans, N-acetylneuraminic acid is involved in the amino sugar metabolism pathway. N-Acetylneuraminic acid is also involved in several metabolic disorders, some of which include the tay-sachs disease pathway, the salla disease/infantile sialic Acid storage disease pathway, the g(m2)-gangliosidosis: variant b, tay-sachs disease pathway, and the sialuria or french type sialuria pathway. N-Acetylneuraminic acid has been found to be associated with the diseases known as sialidosis, normosomatic type; n-acetylneuraminic acid has also been linked to the inborn metabolic disorders including salla disease.	http://www.hmdb.ca/metabolites/HMDB0000230

N-Acetylornithine ; HMDB0003357	N-Acetylornithine, also known as AOR, belongs to the class of organic compounds known as n-acyl-l-alpha-amino acids. These are n-acylated alpha amino acids which have the L-configuration of the alpha-carbon atom. N-Acetylornithine is soluble (in water) and a weakly acidic compound (based on its pKa). N-Acetylornithine has been found in human prostate tissue, and has also been detected in multiple biofluids, such as saliva, urine, and blood. N-Acetylornithine exists in all eukaryotes, ranging from yeast to humans. Outside of the human body, N-acetylornithine can be found in a number of food items such as sago palm, prickly pear, deerberry, and poppy. This makes N-acetylornithine a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0003357
N-Acetylornithine ; HMDB03357	N-Acetylornithine, also known as AOR, belongs to the class of organic compounds known as n-acyl-l-alpha-amino acids. These are n-acylated alpha amino acids which have the L-configuration of the alpha-carbon atom. N-Acetylornithine is soluble (in water) and a weakly acidic compound (based on its pKa). N-Acetylornithine has been found in human prostate tissue, and has also been detected in multiple biofluids, such as saliva, urine, and blood. N-Acetylornithine exists in all eukaryotes, ranging from yeast to humans. Outside of the human body, N-acetylornithine can be found in a number of food items such as sago palm, prickly pear, deerberry, and poppy. This makes N-acetylornithine a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0003357

N-Acetylproline ; HMDB0094701	N-Acetylproline belongs to the class of organic compounds known as proline and derivatives. Proline and derivatives are compounds containing proline or a derivative thereof resulting from reaction of proline at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. N-Acetylproline is soluble (in water) and a weakly acidic compound (based on its pKa). N-Acetylproline has been primarily detected in feces.	http://www.hmdb.ca/metabolites/HMDB0094701
N-Acetylputrescine ; HMDB0002064	N-Acetylputrescine belongs to the class of organic compounds known as carboximidic acids. These are organic acids with the general formula RC(=N)-OH (R=H, organic group). N-Acetylputrescine is soluble (in water) and an extremely weak acidic (essentially neutral) compound (based on its pKa). N-Acetylputrescine has been primarily detected in saliva, feces, urine, and blood. Within the cell, N-acetylputrescine is primarily located in the cytoplasm. N-Acetylputrescine exists in all eukaryotes, ranging from yeast to humans.	http://www.hmdb.ca/metabolites/HMDB0002064
N-Acetylputrescine ; HMDB02064	N-Acetylputrescine belongs to the class of organic compounds known as carboximidic acids. These are organic acids with the general formula RC(=N)-OH (R=H, organic group). N-Acetylputrescine is soluble (in water) and an extremely weak acidic (essentially neutral) compound (based on its pKa). N-Acetylputrescine has been primarily detected in saliva, feces, urine, and blood. Within the cell, N-acetylputrescine is primarily located in the cytoplasm. N-Acetylputrescine exists in all eukaryotes, ranging from yeast to humans.	http://www.hmdb.ca/metabolites/HMDB0002064

N-Acetylserine ; HMDB0002931	N-Acetylserine belongs to the class of organic compounds known as n-acyl-l-alpha-amino acids. These are n-acylated alpha amino acids which have the L-configuration of the alpha-carbon atom. N-Acetylserine exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). N-Acetylserine has been detected in multiple biofluids, such as saliva and urine. Within the cell, N-acetylserine is primarily located in the cytoplasm. N-Acetylserine has been linked to the inborn metabolic disorders including aminoacylase I deficiency.	http://www.hmdb.ca/metabolites/HMDB0002931
N-Acetylserine ; HMDB02931	N-Acetylserine belongs to the class of organic compounds known as n-acyl-l-alpha-amino acids. These are n-acylated alpha amino acids which have the L-configuration of the alpha-carbon atom. N-Acetylserine exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). N-Acetylserine has been detected in multiple biofluids, such as saliva and urine. Within the cell, N-acetylserine is primarily located in the cytoplasm. N-Acetylserine has been linked to the inborn metabolic disorders including aminoacylase I deficiency.	http://www.hmdb.ca/metabolites/HMDB0002931
N-Acetyltaurine ; HMDB0240253	N-Acetyltaurine, also known as atamg or nact, belongs to the class of organic compounds known as organosulfonic acids. Organosulfonic acids are compounds containing the sulfonic acid group, which has the general structure RS(=O)2OH (R is not a hydrogen atom). N-Acetyltaurine is soluble (in water) and an extremely strong acidic compound (based on its pKa). N-Acetyltaurine can be biosynthesized from taurine.	http://www.hmdb.ca/metabolites/HMDB0240253
N-Acetylthreonine ; HMDB0062557	N-Acetylthreonine belongs to the class of organic compounds known as n-acyl-l-alpha-amino acids. These are n-acylated alpha amino acids which have the L-configuration of the alpha-carbon atom. N-Acetylthreonine has been primarily detected in feces.	http://www.hmdb.ca/metabolites/HMDB0062557

N-acetyltryptophan ; HMDB0013713	N-Acetyltryptophan, also known as ac-try or acetyl-L-TRP, belongs to the class of organic compounds known as n-acyl-l-alpha-amino acids. These are n-acylated alpha amino acids which have the L-configuration of the alpha-carbon atom. N-Acetyltryptophan exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. N-Acetyltryptophan has been detected in multiple biofluids, such as feces and urine.	http://www.hmdb.ca/metabolites/HMDB0013713
N-acetyltryptophan ; HMDB13713	N-Acetyltryptophan, also known as ac-try or acetyl-L-TRP, belongs to the class of organic compounds known as n-acyl-l-alpha-amino acids. These are n-acylated alpha amino acids which have the L-configuration of the alpha-carbon atom. N-Acetyltryptophan exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. N-Acetyltryptophan has been detected in multiple biofluids, such as feces and urine.	http://www.hmdb.ca/metabolites/HMDB0013713
N-Acetylvaline ; HMDB0011757	N-Acetylvaline, also known as acetyl-val, belongs to the class of organic compounds known as n-acyl-alpha amino acids. N-acyl-alpha amino acids are compounds containing an alpha amino acid which bears an acyl group at its terminal nitrogen atom. N-Acetylvaline is soluble (in water) and a weakly acidic compound (based on its pKa). N-Acetylvaline has been primarily detected in feces.	http://www.hmdb.ca/metabolites/HMDB0011757
N-Alpha-acetyllysine ; HMDB0000446	Acetyllysine belongs to the class of organic compounds known as n-acyl-alpha amino acids. N-acyl-alpha amino acids are compounds containing an alpha amino acid which bears an acyl group at its terminal nitrogen atom. Acetyllysine exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Acetyllysine has been primarily detected in feces. Within the cell, acetyllysine is primarily located in the cytoplasm. Acetyllysine exists in all eukaryotes, ranging from yeast to humans.	http://www.hmdb.ca/metabolites/HMDB0000446

N-Carboxyethyl-g-aminobutyric acid ; HMDB0002201	N-Carboxyethyl-g-aminobutyric acid, also known as 4-(2-carboxy-ethylamino)-butyrate or carboxyethyl-gaba, belongs to the class of organic compounds known as gamma amino acids and derivatives. These are amino acids having a (-NH2) group attached to the gamma carbon atom. N-Carboxyethyl-g-aminobutyric acid is soluble (in water) and a weakly acidic compound (based on its pKa).	http://www.hmdb.ca/metabolites/HMDB0002201
N-Formyl-L-methionine ; HMDB0001015	N-Formyl-L-methionine, also known as fmet or for-met-OH, belongs to the class of organic compounds known as methionine and derivatives. Methionine and derivatives are compounds containing methionine or a derivative thereof resulting from reaction of methionine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. N-Formyl-L-methionine is slightly soluble (in water) and a weakly acidic compound (based on its pKa). N-Formyl-L-methionine has been found in human intestine tissue, and has also been detected in multiple biofluids, such as feces and urine.	http://www.hmdb.ca/metabolites/HMDB0001015
N-Formyl-L-methionine ; HMDB01015	N-Formyl-L-methionine, also known as fmet or for-met-OH, belongs to the class of organic compounds known as methionine and derivatives. Methionine and derivatives are compounds containing methionine or a derivative thereof resulting from reaction of methionine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. N-Formyl-L-methionine is slightly soluble (in water) and a weakly acidic compound (based on its pKa). N-Formyl-L-methionine has been found in human intestine tissue, and has also been detected in multiple biofluids, such as feces and urine.	http://www.hmdb.ca/metabolites/HMDB0001015

N-Lauroylglycine ; HMDB0013272	N-Lauroylglycine, also known as acylglycine c:12 or dodecanamidoacetate, belongs to the class of organic compounds known as n-acyl-alpha amino acids. N-acyl-alpha amino acids are compounds containing an alpha amino acid which bears an acyl group at its terminal nitrogen atom. N-Lauroylglycine is considered to be a practically insoluble (in water) and relatively neutral molecule. Within the cell, N-lauroylglycine is primarily located in the membrane (predicted from logP). N-Lauroylglycine can be biosynthesized from dodecanoic acid.	http://www.hmdb.ca/metabolites/HMDB0013272
N-Lauroylglycine ; HMDB13272	N-Lauroylglycine, also known as acylglycine c:12 or dodecanamidoacetate, belongs to the class of organic compounds known as n-acyl-alpha amino acids. N-acyl-alpha amino acids are compounds containing an alpha amino acid which bears an acyl group at its terminal nitrogen atom. N-Lauroylglycine is considered to be a practically insoluble (in water) and relatively neutral molecule. Within the cell, N-lauroylglycine is primarily located in the membrane (predicted from logP). N-Lauroylglycine can be biosynthesized from dodecanoic acid.	http://www.hmdb.ca/metabolites/HMDB0013272
N-Methyl-L-proline ; HMDB0094696	N-Methyl-L-proline, also known as N-methyl-L-proline, (2S)-1-methylpyrrolidine-2-carboxylic acid, hydric acid, or monomethyl proline, is classified as a proline or a proline derivative. It is not naturally produced by humans and can only be obtained from the diet. In particular, it is a metabolically inert cell protectant found in many plants and is used by plants to protect against extremes in osmolarity and growth temperatures. N-Methyl-L-proline is found in the fruit juices of yellow orange, blood orange, lemon, mandarin, and bitter orange (PMID: 21838291).	http://www.hmdb.ca/metabolites/HMDB0094696

N-Methylhistamine ; HMDB0061685	N-Methylhistamine belongs to the class of organic compounds known as aralkylamines. These are alkylamines in which the alkyl group is substituted at one carbon atom by an aromatic hydrocarbyl group. N-Methylhistamine is soluble (in water) and a very weakly acidic compound (based on its pKa).	http://www.hmdb.ca/metabolites/HMDB0061685
N-Methylhistamine ; HMDB61685	N-Methylhistamine belongs to the class of organic compounds known as aralkylamines. These are alkylamines in which the alkyl group is substituted at one carbon atom by an aromatic hydrocarbyl group. N-Methylhistamine is soluble (in water) and a very weakly acidic compound (based on its pKa).	http://www.hmdb.ca/metabolites/HMDB0061685
N-Oleoylethanolamine ; HMDB0002088	N-Oleoyl ethanolamine, also known as OEA or N-(hydroxyethyl)oleamide, belongs to the class of organic compounds known as n-acylethanolamines. N-acylethanolamines are compounds containing an N-acyethanolamine moiety, which is characterized by an acyl group is linked to the nitrogen atom of ethanolamine. Thus, N-oleoyl ethanolamine is considered to be a fatty amide lipid molecule. N-Oleoyl ethanolamine is considered to be a practically insoluble (in water) and relatively neutral molecule. N-Oleoyl ethanolamine has been detected in multiple biofluids, such as feces and blood. Within the cell, N-oleoyl ethanolamine is primarily located in the membrane (predicted from logP). N-Oleoyl ethanolamine can be biosynthesized from oleic acid.	http://www.hmdb.ca/metabolites/HMDB0002088

N-Oleoylethanolamine ; HMDB02088	N-Oleoyl ethanolamine, also known as OEA or N-(hydroxyethyl)oleamide, belongs to the class of organic compounds known as n-acylethanolamines. N-acylethanolamines are compounds containing an N-acyethanolamine moiety, which is characterized by an acyl group is linked to the nitrogen atom of ethanolamine. Thus, N-oleoyl ethanolamine is considered to be a fatty amide lipid molecule. N-Oleoyl ethanolamine is considered to be a practically insoluble (in water) and relatively neutral molecule. N-Oleoyl ethanolamine has been detected in multiple biofluids, such as feces and blood. Within the cell, N-oleoyl ethanolamine is primarily located in the membrane (predicted from logP). N-Oleoyl ethanolamine can be biosynthesized from oleic acid.	http://www.hmdb.ca/metabolites/HMDB0002088
N1,N12-Diacetylspermine ; HMDB0002172	N1,N12-Diacetylspermine, also known as daspm or n',n''-diacetylspermine, belongs to the class of organic compounds known as carboximidic acids. These are organic acids with the general formula RC(=N)-OH (R=H, organic group). N1,N12-Diacetylspermine is considered to be a practically insoluble (in water) and relatively neutral molecule. N1,N12-Diacetylspermine has been detected in multiple biofluids, such as urine and blood.	http://www.hmdb.ca/metabolites/HMDB0002172
N1-Acetylspermidine ; HMDB0001276	N1-Acetylspermidine belongs to the class of organic compounds known as carboximidic acids. These are organic acids with the general formula RC(=N)-OH (R=H, organic group). N1-Acetylspermidine is slightly soluble (in water) and an extremely weak acidic (essentially neutral) compound (based on its pKa). N1-Acetylspermidine has been detected in multiple biofluids, such as urine and blood. Within the cell, N1-acetylspermidine is primarily located in the cytoplasm. N1-Acetylspermidine exists in all eukaryotes, ranging from yeast to humans.	http://www.hmdb.ca/metabolites/HMDB0001276

N1-Acetylspermidine ; HMDB01276	N1-Acetylspermidine belongs to the class of organic compounds known as carboximidic acids. These are organic acids with the general formula RC(=N)-OH (R=H, organic group). N1-Acetylspermidine is slightly soluble (in water) and an extremely weak acidic (essentially neutral) compound (based on its pKa). N1-Acetylspermidine has been detected in multiple biofluids, such as urine and blood. Within the cell, N1-acetylspermidine is primarily located in the cytoplasm. N1-Acetylspermidine exists in all eukaryotes, ranging from yeast to humans.	http://www.hmdb.ca/metabolites/HMDB0001276
N1-Methyl-2-pyridone-5-carboxamide ; HMDB0004193	N1-Methyl-2-pyridone-5-carboxamide, also known as 1-methyl-5-carboxylamide-2-pyridone, belongs to the class of organic compounds known as nicotinamides. These are heterocyclic aromatic compounds containing a pyridine ring substituted at position 3 by a carboxamide group. N1-Methyl-2-pyridone-5-carboxamide is soluble (in water) and an extremely weak acidic (essentially neutral) compound (based on its pKa). N1-Methyl-2-pyridone-5-carboxamide has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, N1-methyl-2-pyridone-5-carboxamide is primarily located in the cytoplasm. N1-Methyl-2-pyridone-5-carboxamide can be biosynthesized from 1-methylnicotinamide; which is mediated by the enzyme aldehyde oxidase. In humans, N1-methyl-2-pyridone-5-carboxamide is involved in the nicotinate and nicotinamide metabolism pathway. N1-Methyl-2-pyridone-5-carboxamide is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0004193

N1-Methyl-2-pyridone-5-carboxamide ; HMDB04193	N1-Methyl-2-pyridone-5-carboxamide, also known as 1-methyl-5-carboxylamide-2-pyridone, belongs to the class of organic compounds known as nicotinamides. These are heterocyclic aromatic compounds containing a pyridine ring substituted at position 3 by a carboxamide group. N1-Methyl-2-pyridone-5-carboxamide is soluble (in water) and an extremely weak acidic (essentially neutral) compound (based on its pKa). N1-Methyl-2-pyridone-5-carboxamide has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, N1-methyl-2-pyridone-5-carboxamide is primarily located in the cytoplasm. N1-Methyl-2-pyridone-5-carboxamide can be biosynthesized from 1-methylnicotinamide; which is mediated by the enzyme aldehyde oxidase. In humans, N1-methyl-2-pyridone-5-carboxamide is involved in the nicotinate and nicotinamide metabolism pathway. N1-Methyl-2-pyridone-5-carboxamide is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0004193

N1-Methyl-4-pyridone-3-carboxamide ; HMDB0004194	N1-Methyl-4-pyridone-3-carboxamide, also known as 5-aminocarbonyl-1-methyl-4(1h)-pyridone, belongs to the class of organic compounds known as nicotinamides. These are heterocyclic aromatic compounds containing a pyridine ring substituted at position 3 by a carboxamide group. N1-Methyl-4-pyridone-3-carboxamide is soluble (in water) and an extremely weak acidic (essentially neutral) compound (based on its pKa). N1-Methyl-4-pyridone-3-carboxamide has been detected in multiple biofluids, such as urine and blood. Within the cell, N1-methyl-4-pyridone-3-carboxamide is primarily located in the cytoplasm. N1-Methyl-4-pyridone-3-carboxamide can be biosynthesized from 1-methylnicotinamide through the action of the enzyme aldehyde oxidase. In humans, N1-methyl-4-pyridone-3-carboxamide is involved in the nicotinate and nicotinamide metabolism pathway. N1-Methyl-4-pyridone-3-carboxamide is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0004194
N2,N2-Dimethylguanosine ; HMDB0004824	N2,N2-Dimethylguanosine, also known as M22G or m(2)(2)g, belongs to the class of organic compounds known as purine nucleosides. Purine nucleosides are compounds comprising a purine base attached to a ribosyl or deoxyribosyl moiety. N2,N2-Dimethylguanosine exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). N2,N2-Dimethylguanosine has been detected in multiple biofluids, such as urine and blood.	http://www.hmdb.ca/metabolites/HMDB0004824
N2,N2-Dimethylguanosine ; HMDB04824	N2,N2-Dimethylguanosine, also known as M22G or m(2)(2)g, belongs to the class of organic compounds known as purine nucleosides. Purine nucleosides are compounds comprising a purine base attached to a ribosyl or deoxyribosyl moiety. N2,N2-Dimethylguanosine exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). N2,N2-Dimethylguanosine has been detected in multiple biofluids, such as urine and blood.	http://www.hmdb.ca/metabolites/HMDB0004824

N2-gamma-Glutamylglutamine ; HMDB0011738	N2-gamma-Glutamylglutamine, also known as gamma-L-glu-L-GLN or L-glutamyl-L-glutamine, belongs to the class of organic compounds known as dipeptides. These are organic compounds containing a sequence of exactly two alpha-amino acids joined by a peptide bond. N2-gamma-Glutamylglutamine is slightly soluble (in water) and a moderately acidic compound (based on its pKa). N2-gamma-Glutamylglutamine has been found in human prostate tissue, and has also been detected in multiple biofluids, such as feces, blood, and cerebrospinal fluid. N2-gamma-Glutamylglutamine can be biosynthesized from L-glutamic acid and L-glutamine.	http://www.hmdb.ca/metabolites/HMDB0011738
N4-Acetylcytidine ; HMDB0005923	N4-Acetylcytidine belongs to the class of organic compounds known as pyrimidine nucleosides. Pyrimidine nucleosides are compounds comprising a pyrimidine base attached to a ribosyl or deoxyribosyl moiety. N4-Acetylcytidine is soluble (in water) and a very weakly acidic compound (based on its pKa). N4-Acetylcytidine has been primarily detected in urine.	http://www.hmdb.ca/metabolites/HMDB0005923
N4-Acetylcytidine ; HMDB05923	N4-Acetylcytidine belongs to the class of organic compounds known as pyrimidine nucleosides. Pyrimidine nucleosides are compounds comprising a pyrimidine base attached to a ribosyl or deoxyribosyl moiety. N4-Acetylcytidine is soluble (in water) and a very weakly acidic compound (based on its pKa). N4-Acetylcytidine has been primarily detected in urine.	http://www.hmdb.ca/metabolites/HMDB0005923

N6,N6,N6-Trimethyl-L-lysine ; HMDB0001325	N6,N6,N6-Trimethyl-L-lysine, also known as epsilon-N-trimethyl-L-lysine or trimethyllysine, belongs to the class of organic compounds known as l-alpha-amino acids. These are alpha amino acids which have the L-configuration of the alpha-carbon atom. N6,N6,N6-Trimethyl-L-lysine is considered to be a practically insoluble (in water) and relatively neutral molecule. N6,N6,N6-Trimethyl-L-lysine has been found in human testicle tissue, and has also been detected in multiple biofluids, such as feces, urine, and cerebrospinal fluid. Within the cell, N6,N6,N6-trimethyl-L-lysine is primarily located in the cytoplasm and endoplasmic reticulum. N6,N6,N6-Trimethyl-L-lysine participates in a number of enzymatic reactions. In particular, N6,N6,N6-Trimethyl-L-lysine and S-adenosylhomocysteine can be biosynthesized from L-lysine and S-adenosylmethionine; which is mediated by the enzyme histone-lysine N-methyltransferase SETD7. In addition, N6,N6,N6-Trimethyl-L-lysine and oxoglutaric acid can be converted into 3-hydroxy-N6,N6,N6-trimethyl-L-lysine and succinic acid through its interaction with the enzyme trimethyllysine dioxygenase, mitochondrial. In humans, N6,N6,N6-trimethyl-L-lysine is involved in carnitine synthesis pathway.	http://www.hmdb.ca/metabolites/HMDB0001325

N6,N6,N6-Trimethyl-L-lysine ; HMDB01325	N6,N6,N6-Trimethyl-L-lysine, also known as epsilon-N-trimethyl-L-lysine or trimethyllysine, belongs to the class of organic compounds known as l-alpha-amino acids. These are alpha amino acids which have the L-configuration of the alpha-carbon atom. N6,N6,N6-Trimethyl-L-lysine is considered to be a practically insoluble (in water) and relatively neutral molecule. N6,N6,N6-Trimethyl-L-lysine has been found in human testicle tissue, and has also been detected in multiple biofluids, such as feces, urine, and cerebrospinal fluid. Within the cell, N6,N6,N6-trimethyl-L-lysine is primarily located in the cytoplasm and endoplasmic reticulum. N6,N6,N6-Trimethyl-L-lysine participates in a number of enzymatic reactions. In particular, N6,N6,N6-Trimethyl-L-lysine and S-adenosylhomocysteine can be biosynthesized from L-lysine and S-adenosylmethionine; which is mediated by the enzyme histone-lysine N-methyltransferase SETD7. In addition, N6,N6,N6-Trimethyl-L-lysine and oxoglutaric acid can be converted into 3-hydroxy-N6,N6,N6-trimethyl-L-lysine and succinic acid through its interaction with the enzyme trimethyllysine dioxygenase, mitochondrial. In humans, N6,N6,N6-trimethyl-L-lysine is involved in carnitine synthesis pathway.	http://www.hmdb.ca/metabolites/HMDB0001325
N6-Acetyl-L-lysine ; HMDB0000206	N6-Acetyl-L-lysine, also known as N(6)-acetyllysine or omega-acetyllsine, belongs to the class of organic compounds known as l-alpha-amino acids. These are alpha amino acids which have the L-configuration of the alpha-carbon atom. N6-Acetyl-L-lysine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). N6-Acetyl-L-lysine has been primarily detected in saliva, feces, urine, and blood. Within the cell, N6-acetyl-L-lysine is primarily located in the cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000206

N6-Acetyl-L-lysine ; HMDB00206	N6-Acetyl-L-lysine, also known as N(6)-acetyllysine or omega-acetyllsine, belongs to the class of organic compounds known as l-alpha-amino acids. These are alpha amino acids which have the L-configuration of the alpha-carbon atom. N6-Acetyl-L-lysine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). N6-Acetyl-L-lysine has been primarily detected in saliva, feces, urine, and blood. Within the cell, N6-acetyl-L-lysine is primarily located in the cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000206
N6-Carbamoyl-L-threonyladenosine ; HMDB0041623	N6-Carbamoyl-L-threonyladenosine belongs to the class of organic compounds known as purine nucleosides. Purine nucleosides are compounds comprising a purine base attached to a ribosyl or deoxyribosyl moiety. N6-Carbamoyl-L-threonyladenosine is slightly soluble (in water) and a very weakly acidic compound (based on its pKa). Within the cell, N6-carbamoyl-L-threonyladenosine is primarily located in the cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0041623
N6-Methyladenosine ; HMDB0004044	N6-Methyladenosine, also known as M6A or N(6)mado, belongs to the class of organic compounds known as purine nucleosides. Purine nucleosides are compounds comprising a purine base attached to a ribosyl or deoxyribosyl moiety. N6-Methyladenosine is slightly soluble (in water) and a very weakly acidic compound (based on its pKa).	http://www.hmdb.ca/metabolites/HMDB0004044

Naproxen ; HMDB0001923	Naproxen, also known as naprosyn or (S)-naproxen, belongs to the class of organic compounds known as naphthalenes. Naphthalenes are compounds containing a naphthalene moiety, which consists of two fused benzene rings. Naproxen is a drug which is used for the treatment of rheumatoid arthritis, osteoarthritis, ankylosing spondylitis, tendinitis, bursitis, and acute gout. also for the relief of mild to moderate pain and the treatment of primary dysmenorrhea. Naproxen exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Naproxen has been found in human liver, kidney and skin tissues, and has also been primarily detected in blood. Within the cell, naproxen is primarily located in the membrane (predicted from logP). In humans, naproxen is involved in the naproxen action pathway.	http://www.hmdb.ca/metabolites/HMDB0001923
Naproxen ; HMDB01923	Naproxen, also known as naprosyn or (S)-naproxen, belongs to the class of organic compounds known as naphthalenes. Naphthalenes are compounds containing a naphthalene moiety, which consists of two fused benzene rings. Naproxen is a drug which is used for the treatment of rheumatoid arthritis, osteoarthritis, ankylosing spondylitis, tendinitis, bursitis, and acute gout. also for the relief of mild to moderate pain and the treatment of primary dysmenorrhea. Naproxen exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Naproxen has been found in human liver, kidney and skin tissues, and has also been primarily detected in blood. Within the cell, naproxen is primarily located in the membrane (predicted from logP). In humans, naproxen is involved in the naproxen action pathway.	http://www.hmdb.ca/metabolites/HMDB0001923

Ne,Ne dimethyllysine ; HMDB0013287	Ne,ne dimethyllysine belongs to the class of organic compounds known as alpha amino acids. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon). Ne,ne dimethyllysine is soluble (in water) and a moderately acidic compound (based on its pKa).	http://www.hmdb.ca/metabolites/HMDB0013287
Ne,Ne dimethyllysine ; HMDB13287	Ne,ne dimethyllysine belongs to the class of organic compounds known as alpha amino acids. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon). Ne,ne dimethyllysine is soluble (in water) and a moderately acidic compound (based on its pKa).	http://www.hmdb.ca/metabolites/HMDB0013287
Neopterin ; HMDB0000845	Neopterin, also known as monapterin, belongs to the class of organic compounds known as biopterins and derivatives. These are coenzymes containing a 2-amino-pteridine-4-one derivative. They are mainly synthesized in several parts of the body, including the pineal gland. Neopterin is slightly soluble (in water) and a very weakly acidic compound (based on its pKa). Neopterin has been found throughout most human tissues, and has also been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, neopterin is primarily located in the cytoplasm. In humans, neopterin is involved in pterine biosynthesis pathway. Neopterin is also involved in several metabolic disorders, some of which include sepiapterin reductase deficiency, the segawa syndrome pathway, the dopa-responsive dystonia pathway, and hyperphenylalaniemia due to guanosine triphosphate cyclohydrolase deficiency. Neopterin is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000845

Neopterin ; HMDB00845	Neopterin, also known as monapterin, belongs to the class of organic compounds known as biopterins and derivatives. These are coenzymes containing a 2-amino-pteridine-4-one derivative. They are mainly synthesized in several parts of the body, including the pineal gland. Neopterin is slightly soluble (in water) and a very weakly acidic compound (based on its pKa). Neopterin has been found throughout most human tissues, and has also been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, neopterin is primarily located in the cytoplasm. In humans, neopterin is involved in pterine biosynthesis pathway. Neopterin is also involved in several metabolic disorders, some of which include sepiapterin reductase deficiency, the segawa syndrome pathway, the dopa-responsive dystonia pathway, and hyperphenylalaniemia due to guanosine triphosphate cyclohydrolase deficiency. Neopterin is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000845
Nervonic acid ; HMDB0002368	Nervonic acid, also known as selacholeate or nervonsaeure, belongs to the class of organic compounds known as very long-chain fatty acids. These are fatty acids with an aliphatic tail that contains at least 22 carbon atoms. Nervonic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Nervonic acid has been detected in multiple biofluids, such as feces, blood, and urine. Within the cell, nervonic acid is primarily located in the cytoplasm, membrane (predicted from logP) and adiposome. Nervonic acid is also a parent compound for other transformation products, including but not limited to, beta-D-glucosyl-N-[(15Z)-tetracosenoyl]sphingosine, beta-D-galactosyl-N-[(15Z)-tetracosenoyl]sphingosine, and beta-D-galactosyl-(1->4)-beta-D-glucosyl-(11)-N-[(15Z)-tetracosenoyl]sphingosine.	http://www.hmdb.ca/metabolites/HMDB0002368

Nervonic acid ; HMDB02368	Nervonic acid, also known as selacholeate or nervonsaeure, belongs to the class of organic compounds known as very long-chain fatty acids. These are fatty acids with an aliphatic tail that contains at least 22 carbon atoms. Nervonic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Nervonic acid has been detected in multiple biofluids, such as feces, blood, and urine. Within the cell, nervonic acid is primarily located in the cytoplasm, membrane (predicted from logP) and adiposome. Nervonic acid is also a parent compound for other transformation products, including but not limited to, beta-D-glucosyl-N-[(15Z)-tetracosenoyl]sphingosine, beta-D-galactosyl-N-[(15Z)-tetracosenoyl]sphingosine, and beta-D-galactosyl-(1->4)-beta-D-glucosyl-(11)-N-[(15Z)-tetracosenoyl]sphingosine.	http://www.hmdb.ca/metabolites/HMDB0002368

Niacinamide ; HMDB0001406	Niacinamide, also known as vitamin B3 or b 3, vitamin, belongs to the class of organic compounds known as nicotinamides. These are heterocyclic aromatic compounds containing a pyridine ring substituted at position 3 by a carboxamide group. Niacinamide exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Niacinamide has been found throughout most human tissues, and has also been primarily detected in feces, urine, blood, and breast milk. Niacinamide exists in all eukaryotes, ranging from yeast to humans. Niacinamide participates in a number of enzymatic reactions. In particular, S-Adenosylmethionine and niacinamide can be converted into S-adenosylhomocysteine and 1-methylnicotinamide through the action of the enzyme nicotinamide N-methyltransferase. Furthermore, Niacinamide and ribose-1-arsenate can be converted into nicotinamide riboside and phosphoric acid through the action of the enzyme purine nucleoside phosphorylase. Furthermore, Niacinamide can be converted into nicotinic acid and ammonium; which is mediated by the enzyme nicotinamidase. Finally, D-Ribose and niacinamide can be biosynthesized from nicotinamide riboside through the action of the enzyme uridine nucleosidase. In humans, niacinamide is involved in the nicotinate and nicotinamide metabolism pathway. Niacinamide is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001406

Niacinamide ; HMDB01406	Niacinamide, also known as vitamin B3 or b 3, vitamin, belongs to the class of organic compounds known as nicotinamides. These are heterocyclic aromatic compounds containing a pyridine ring substituted at position 3 by a carboxamide group. Niacinamide exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Niacinamide has been found throughout most human tissues, and has also been primarily detected in feces, urine, blood, and breast milk. Niacinamide exists in all eukaryotes, ranging from yeast to humans. Niacinamide participates in a number of enzymatic reactions. In particular, S-Adenosylmethionine and niacinamide can be converted into S-adenosylhomocysteine and 1-methylnicotinamide through the action of the enzyme nicotinamide N-methyltransferase. Furthermore, Niacinamide and ribose-1-arsenate can be converted into nicotinamide riboside and phosphoric acid through the action of the enzyme purine nucleoside phosphorylase. Furthermore, Niacinamide can be converted into nicotinic acid and ammonium; which is mediated by the enzyme nicotinamidase. Finally, D-Ribose and niacinamide can be biosynthesized from nicotinamide riboside through the action of the enzyme uridine nucleosidase. In humans, niacinamide is involved in the nicotinate and nicotinamide metabolism pathway. Niacinamide is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001406

Nicotinamide riboside ; HMDB0000855	Nicotinamide riboside, also known as N-ribosylnicotinamide or SRT-647, belongs to the class of organic compounds known as glycosylamines. Glycosylamines are compounds consisting of an amine with a beta-N-glycosidic bond to a carbohydrate, thus forming a cyclic hemiaminal ether bond (alpha-amino ether). Nicotinamide riboside is slightly soluble (in water) and a very weakly acidic compound (based on its pKa). Nicotinamide riboside has been primarily detected in urine. Within the cell, nicotinamide riboside is primarily located in the cytoplasm. Nicotinamide riboside exists in all eukaryotes, ranging from yeast to humans. Nicotinamide riboside participates in a number of enzymatic reactions. In particular, Nicotinamide riboside and phosphoric acid can be biosynthesized from niacinamide and ribose-1-arsenate through the action of the enzyme purine nucleoside phosphorylase. Furthermore, Nicotinamide riboside can be converted into nicotinamide ribotide through the action of the enzyme cytosolic purine 5'-nucleotidase. Furthermore, Nicotinamide riboside can be converted into nicotinamide ribotide; which is mediated by the enzyme nicotinamide riboside kinase. Finally, Nicotinamide riboside can be converted into D-ribose and niacinamide through the action of the enzyme uridine nucleosidase. In humans, nicotinamide riboside is involved in the nicotinate and nicotinamide metabolism pathway. Outside of the human body, nicotinamide riboside can be found in a number of food items such as yautia, carob, hyssop, and citrus. This makes nicotinamide riboside a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000855

Nonadecanoic acid ; HMDB0000772	Nonadecylic acid, also known as N-nonadecanoate or nonadecylate, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Nonadecylic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Nonadecylic acid has been detected in multiple biofluids, such as feces, blood, and urine. Within the cell, nonadecylic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. Nonadecylic acid is also a parent compound for other transformation products, including but not limited to, 2-hydroxynonadecanoic acid, (18R)-18-hydroxynonadecanoic acid, and methyl nonadecanoate. Outside of the human body, nonadecylic acid can be found in black elderberry, dandelion, garden onion, and peanut. This makes nonadecylic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000772

Nonadecanoic acid ; HMDB00772	Nonadecylic acid, also known as N-nonadecanoate or nonadecylate, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Nonadecylic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Nonadecylic acid has been detected in multiple biofluids, such as feces, blood, and urine. Within the cell, nonadecylic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. Nonadecylic acid is also a parent compound for other transformation products, including but not limited to, 2-hydroxynonadecanoic acid, (18R)-18-hydroxynonadecanoic acid, and methyl nonadecanoate. Outside of the human body, nonadecylic acid can be found in black elderberry, dandelion, garden onion, and peanut. This makes nonadecylic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000772
Nonanoylcarnitine ; HMDB0013288	3-Hydroxy-9Z-octadecenoylcarnitine belongs to the class of organic compounds known as beta hydroxy acids and derivatives. Beta hydroxy acids and derivatives are compounds containing a carboxylic acid substituted with a hydroxyl group on the C3 carbon atom. 3-Hydroxy-9Z-octadecenoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule.	http://www.hmdb.ca/metabolites/HMDB0013288
Nonanoylcarnitine ; HMDB13288	3-Hydroxy-9Z-octadecenoylcarnitine belongs to the class of organic compounds known as beta hydroxy acids and derivatives. Beta hydroxy acids and derivatives are compounds containing a carboxylic acid substituted with a hydroxyl group on the C3 carbon atom. 3-Hydroxy-9Z-octadecenoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule.	http://www.hmdb.ca/metabolites/HMDB0013288

O-methoxycatechol-O-sulphate ; HMDB0060013	O-Methoxycatechol-O-sulphate, also known as 2-methoxyphenyl sulfate or O-methylcatechol sulfuric acid, belongs to the class of organic compounds known as phenylsulfates. Phenylsulfates are compounds containing a sulfuric acid group conjugated to a phenyl group. O-Methoxycatechol-O-sulphate is slightly soluble (in water) and an extremely strong acidic compound (based on its pKa). O-Methoxycatechol-O-sulphate has been primarily detected in urine. O-Methoxycatechol-O-sulphate can be biosynthesized from catechol.	http://www.hmdb.ca/metabolites/HMDB0060013

O-Phosphoethanolamine ; HMDB0000224	O-Phosphoethanolamine, also known as colamine phosphoric acid or ethanolamine phosphate, belongs to the class of organic compounds known as phosphoethanolamines. Phosphoethanolamines are compounds containing a phosphate linked to the second carbon of an ethanolamine. O-Phosphoethanolamine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). O-Phosphoethanolamine has been detected in most biofluids, including blood, urine, saliva, and cerebrospinal fluid. Within the cell, O-phosphoethanolamine is primarily located in the cytoplasm and endoplasmic reticulum. O-Phosphoethanolamine exists in all eukaryotes, ranging from yeast to humans. O-Phosphoethanolamine participates in a number of enzymatic reactions. In particular, O-Phosphoethanolamine and palmitaldehyde can be biosynthesized from sphinganine 1-phosphate through its interaction with the enzyme sphingosine-1-phosphate lyase 1. In addition, O-Phosphoethanolamine and palmitaldehyde can be biosynthesized from sphingosine 1-phosphate; which is mediated by the enzyme sphingosine-1-phosphate lyase 1. In humans, O-phosphoethanolamine is involved in phosphatidylethanolamine biosynthesis pe(18:2(9Z,12Z)/22:5(4Z,7Z,10Z,13Z,16Z)) pathway, phosphatidylethanolamine biosynthesis pe(18:1(11Z)/22:1(13Z)) pathway, phosphatidylethanolamine biosynthesis pe(20:2(11Z,14Z)/20:5(5Z,8Z,11Z,14Z,17Z)) pathway, and phosphatidylethanolamine biosynthesis pe(24:0/22:5(7Z,10Z,13Z,16Z,19Z)) pathway. O-Phosphoethanolamine is also involved in a few metabolic disorders, which include the krabbe disease pathway, the fabry disease pathway, and the gaucher disease pathway. Outside of the human body, O-phosphoethanolamine can be	http://www.hmdb.ca/metabolites/HMDB0000224

	found in a number of food items such as taro, mustard spinach, american butterfish, and chicory. This makes O-phosphoethanolamine a potential biomarker for the consumption of these food products.	
Octadecanedioic acid ; HMDB0000782	Octadecanedioic acid, also known as 1,18-octadecanedioate or octadecane-1,18-dioate, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Octadecanedioic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Octadecanedioic acid has been primarily detected in urine. Within the cell, octadecanedioic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome.	http://www.hmdb.ca/metabolites/HMDB0000782
Oleic acid ; HMDB0000207	Oleic acid, also known as oleate or 18:1 N-9, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Oleic acid exists as a liquid and is considered to be practically insoluble (in water) and relatively neutral. Oleic acid has been found throughout most human tissues, and has also been detected in most biofluids, including saliva, feces, blood, and urine. Within the cell, oleic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. Oleic acid exists in all eukaryotes, ranging from yeast to humans. Outside of the human body, oleic acid can be found in a number of food items such as lemon thyme, mentha (mint), dandelion, and celery stalks. This makes oleic acid a potential biomarker for the consumption of these food products. Oleic acid is a potentially toxic compound. Oleic acid has been found to be associated with several diseases known as schizophrenia and gestational diabetes; oleic acid has also been linked to the inborn metabolic disorders including isovaleric acidemia.	http://www.hmdb.ca/metabolites/HMDB0000207

Oleic acid ; HMDB00207	Oleic acid, also known as oleate or 18:1 N-9, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Oleic acid exists as a liquid and is considered to be practically insoluble (in water) and relatively neutral. Oleic acid has been found throughout most human tissues, and has also been detected in most biofluids, including saliva, feces, blood, and urine. Within the cell, oleic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. Oleic acid exists in all eukaryotes, ranging from yeast to humans. Outside of the human body, oleic acid can be found in a number of food items such as lemon thyme, mentha (mint), dandelion, and celery stalks. This makes oleic acid a potential biomarker for the consumption of these food products. Oleic acid is a potentially toxic compound. Oleic acid has been found to be associated with several diseases known as schizophrenia and gestational diabetes; oleic acid has also been linked to the inborn metabolic disorders including isovaleric acidemia.	http://www.hmdb.ca/metabolites/HMDB0000207
Oleoyl glycine ; HMDB0013631	N-Oleoyl glycine, also known as elmiric acid or ema-1, belongs to the class of organic compounds known as n-acyl-alpha amino acids. N-acyl-alpha amino acids are compounds containing an alpha amino acid which bears an acyl group at its terminal nitrogen atom. Thus, N-oleoyl glycine is considered to be a fatty amide lipid molecule. N-Oleoyl glycine is considered to be a practically insoluble (in water) and relatively neutral molecule. N-Oleoyl glycine has been primarily detected in blood. Within the cell, N-oleoyl glycine is primarily located in the membrane (predicted from logP). N-Oleoyl glycine can be biosynthesized from oleic acid.	http://www.hmdb.ca/metabolites/HMDB0013631

Oleoyl glycine ; HMDB13631	N-Oleoyl glycine, also known as elmiric acid or ema-1, belongs to the class of organic compounds known as n-acyl-alpha amino acids. N-acyl-alpha amino acids are compounds containing an alpha amino acid which bears an acyl group at its terminal nitrogen atom. Thus, N-oleoyl glycine is considered to be a fatty amide lipid molecule. N-Oleoyl glycine is considered to be a practically insoluble (in water) and relatively neutral molecule. N-Oleoyl glycine has been primarily detected in blood. Within the cell, N-oleoyl glycine is primarily located in the membrane (predicted from logP). N-Oleoyl glycine can be biosynthesized from oleic acid.	http://www.hmdb.ca/metabolites/HMDB0013631
Oleoylcarnitine ; HMDB0005065	Oleoylcarnitine belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Oleoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. Oleoylcarnitine has been detected in multiple biofluids, such as blood and urine. Within the cell, oleoylcarnitine is primarily located in the membrane (predicted from logP) and cytoplasm. Oleoylcarnitine can be biosynthesized from oleic acid.	http://www.hmdb.ca/metabolites/HMDB0005065
Oleoylcarnitine ; HMDB05065	Oleoylcarnitine belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Oleoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. Oleoylcarnitine has been detected in multiple biofluids, such as blood and urine. Within the cell, oleoylcarnitine is primarily located in the membrane (predicted from logP) and cytoplasm. Oleoylcarnitine can be biosynthesized from oleic acid.	http://www.hmdb.ca/metabolites/HMDB0005065

Omeprazole ; HMDB0001913	Omeprazole, also known as prilosec or antra, belongs to the class of organic compounds known as sulfinylbenzimidazoles. These are polycyclic aromatic compounds containing a sulfinyl group attached at the position 2 of a benzimidazole moiety. Omeprazole exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Omeprazole has been primarily detected in blood. Within the cell, omeprazole is primarily located in the cytoplasm. In humans, omeprazole is involved in the omeprazole metabolism pathway and the omeprazole action pathway. Omeprazole is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001913
Omeprazole ; HMDB01913	Omeprazole, also known as prilosec or antra, belongs to the class of organic compounds known as sulfinylbenzimidazoles. These are polycyclic aromatic compounds containing a sulfinyl group attached at the position 2 of a benzimidazole moiety. Omeprazole exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Omeprazole has been primarily detected in blood. Within the cell, omeprazole is primarily located in the cytoplasm. In humans, omeprazole is involved in the omeprazole metabolism pathway and the omeprazole action pathway. Omeprazole is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001913

Ornithine ; HMDB0000214	Ornithine, also known as (S)-ornithine, belongs to the class of organic compounds known as l-alpha-amino acids. These are alpha amino acids which have the L-configuration of the alpha-carbon atom. Ornithine is a drug which is used for nutritional supplementation, also for treating dietary shortage or imbalance. it has been claimed that ornithine improves athletic performance, has anabolic effects, has wound-healing effects, and is immuno-enhancing. Ornithine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Ornithine has been found in human skin, prostate and liver tissues, and has also been detected in most biofluids, including cerebrospinal fluid, sweat, feces, and blood. Within the cell, ornithine is primarily located in the mitochondria and cytoplasm. Ornithine exists in all eukaryotes, ranging from yeast to humans. Ornithine participates in a number of enzymatic reactions. In particular, Ornithine and oxoglutaric acid can be converted into L-glutamic gamma-semialdehyde and L-glutamic acid through the action of the enzyme ornithine aminotransferase, mitochondrial. Furthermore, Ornithine and guanidoacetic acid can be biosynthesized from L-arginine and glycine; which is catalyzed by the enzyme glycine amidinotransferase, mitochondrial. Furthermore, Carbamoyl phosphate and ornithine can be converted into citrulline; which is catalyzed by the enzyme ornithine carbamoyltransferase, mitochondrial. Finally, Ornithine and urea can be biosynthesized from L-arginine; which is mediated by the enzyme arginase-1. In humans, ornithine is involved in spermidine and spermine biosynthesis pathway, the arginine and proline metabolism pathway, the urea cycle pathway, and the glycine and serine metabolism pathway. Ornithine is also involved in several metabolic disorders, some of which include carbamoyl phosphate synthetase deficiency,	http://www.hmdb.ca/metabolites/HMDB0000214

	the hyperprolinemia type II pathway, ornithine aminotransferase deficiency (oat deficiency), and the hyperornithinemia with gyrate atrophy (hoga) pathway. Outside of the human body, ornithine can be found in a number of food items such as broad bean, chestnut, hyacinth bean, and sunflower. This makes ornithine a potential biomarker for the consumption of these food products. Ornithine has been found to be associated with several diseases known as hyperlysinemia i, familial, hyperlysinuria, leukemia, and schizophrenia; ornithine has also been linked to the inborn metabolic disorders including cystinuria.	

Ornithine ; HMDB00214	Ornithine, also known as (S)-ornithine, belongs to the class of organic compounds known as l-alpha-amino acids. These are alpha amino acids which have the L-configuration of the alpha-carbon atom. Ornithine is a drug which is used for nutritional supplementation, also for treating dietary shortage or imbalance. it has been claimed that ornithine improves athletic performance, has anabolic effects, has wound-healing effects, and is immuno-enhancing. Ornithine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Ornithine has been found in human skin, prostate and liver tissues, and has also been detected in most biofluids, including cerebrospinal fluid, sweat, feces, and blood. Within the cell, ornithine is primarily located in the mitochondria and cytoplasm. Ornithine exists in all eukaryotes, ranging from yeast to humans. Ornithine participates in a number of enzymatic reactions. In particular, Ornithine and oxoglutaric acid can be converted into L-glutamic gamma-semialdehyde and L-glutamic acid through the action of the enzyme ornithine aminotransferase, mitochondrial. Furthermore, Ornithine and guanidoacetic acid can be biosynthesized from L-arginine and glycine; which is catalyzed by the enzyme glycine amidinotransferase, mitochondrial. Furthermore, Carbamoyl phosphate and ornithine can be converted into citrulline; which is catalyzed by the enzyme ornithine carbamoyltransferase, mitochondrial. Finally, Ornithine and urea can be biosynthesized from L-arginine; which is mediated by the enzyme arginase-1. In humans, ornithine is involved in spermidine and spermine biosynthesis pathway, the arginine and proline metabolism pathway, the urea cycle pathway, and the glycine and serine metabolism pathway. Ornithine is also involved in several metabolic disorders, some of which include carbamoyl phosphate synthetase deficiency,	http://www.hmdb.ca/metabolites/HMDB0000214

	the hyperprolinemia type II pathway, ornithine aminotransferase deficiency (oat deficiency), and the hyperornithinemia with gyrate atrophy (hoga) pathway. Outside of the human body, ornithine can be found in a number of food items such as broad bean, chestnut, hyacinth bean, and sunflower. This makes ornithine a potential biomarker for the consumption of these food products. Ornithine has been found to be associated with several diseases known as hyperlysinemia i, familial, hyperlysinuria, leukemia, and schizophrenia; ornithine has also been linked to the inborn metabolic disorders including cystinuria.	

Orotic acid ; HMDB0000226	Orotic acid, also known as orotate or orotsaeure, belongs to the class of organic compounds known as pyrimidinecarboxylic acids. These are pyrimidines with a structure containing a carboxyl group attached to the pyrimidine ring. Orotic acid exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). Orotic acid has been found in human liver and pancreas tissues, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, orotic acid is primarily located in the cytoplasm and mitochondria. Orotic acid exists in all eukaryotes, ranging from yeast to humans. Orotic acid participates in a number of enzymatic reactions. In particular, Orotic acid can be biosynthesized from L-dihydroorotic acid and quinone; which is mediated by the enzyme dihydroorotate dehydrogenase (quinone), mitochondrial. In addition, Orotic acid and phosphoribosyl pyrophosphate can be converted into orotidylic acid through its interaction with the enzyme uridine monophosphate synthetase isoform a. In humans, orotic acid is involved in the pyrimidine metabolism pathway. Orotic acid is also involved in several metabolic disorders, some of which include the mngie (mitochondrial neurogastrointestinal encephalopathy) pathway, dihydropyrimidinase deficiency, UMP synthase deficiency (orotic aciduria), and Beta ureidopropionase deficiency. Outside of the human body, orotic acid can be found in a number of food items such as green vegetables, alaska blueberry, chickpea, and colorado pinyon. This makes orotic acid a potential biomarker for the consumption of these food products. Orotic acid is a potentially toxic compound. Orotic acid has been found to be associated with several diseases known as phosphoenolpyruvate carboxykinase deficiency 1, cytosolic and hyperornithinemia-hyperammonemia-homocitrullinuria; orotic acid has also been linked to several inborn	http://www.hmdb.ca/metabolites/HMDB0000226

	metabolic disorders including n-acetylglutamate synthetase deficiency, lysinuric protein intolerance, and ornithine transcarbamylase deficiency.	

Orotic acid ; HMDB00226	Orotic acid, also known as orotate or orotsaeure, belongs to the class of organic compounds known as pyrimidinecarboxylic acids. These are pyrimidines with a structure containing a carboxyl group attached to the pyrimidine ring. Orotic acid exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). Orotic acid has been found in human liver and pancreas tissues, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, orotic acid is primarily located in the cytoplasm and mitochondria. Orotic acid exists in all eukaryotes, ranging from yeast to humans. Orotic acid participates in a number of enzymatic reactions. In particular, Orotic acid can be biosynthesized from L-dihydroorotic acid and quinone; which is mediated by the enzyme dihydroorotate dehydrogenase (quinone), mitochondrial. In addition, Orotic acid and phosphoribosyl pyrophosphate can be converted into orotidylic acid through its interaction with the enzyme uridine monophosphate synthetase isoform a. In humans, orotic acid is involved in the pyrimidine metabolism pathway. Orotic acid is also involved in several metabolic disorders, some of which include the mngie (mitochondrial neurogastrointestinal encephalopathy) pathway, dihydropyrimidinase deficiency, UMP synthase deficiency (orotic aciduria), and Beta ureidopropionase deficiency. Outside of the human body, orotic acid can be found in a number of food items such as green vegetables, alaska blueberry, chickpea, and colorado pinyon. This makes orotic acid a potential biomarker for the consumption of these food products. Orotic acid is a potentially toxic compound. Orotic acid has been found to be associated with several diseases known as phosphoenolpyruvate carboxykinase deficiency 1, cytosolic and hyperornithinemia-hyperammonemia-homocitrullinuria; orotic acid has also been linked to several inborn	http://www.hmdb.ca/metabolites/HMDB0000226

	metabolic disorders including n-acetylglutamate synthetase deficiency, lysinuric protein intolerance, and ornithine transcarbamylase deficiency.	
Orotidine ; HMDB0000788	Orotidine, also known as 6-carboxyuridine, belongs to the class of organic compounds known as pyrimidine nucleosides. Pyrimidine nucleosides are compounds comprising a pyrimidine base attached to a ribosyl or deoxyribosyl moiety. Orotidine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Orotidine has been detected in multiple biofluids, such as urine and blood. Within the cell, orotidine is primarily located in the cytoplasm. Orotidine has been linked to the inborn metabolic disorders including orotic aciduria I.	http://www.hmdb.ca/metabolites/HMDB0000788
Ortho-Hydroxyphenylacetic acid ; HMDB0000669	Ortho-hydroxyphenylacetic acid, also known as (O-hydroxyphenyl)acetate or 2-hydroxybenzeneacetic acid, belongs to the class of organic compounds known as 2(hydroxyphenyl)acetic acids. These are phenylacetic acids that carry a hydroxyl group at the 2-position. Ortho-hydroxyphenylacetic acid exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Ortho-hydroxyphenylacetic acid has been detected in multiple biofluids, such as feces, urine, and blood. Ortho-hydroxyphenylacetic acid can be biosynthesized from phenol and acetic acid. Outside of the human body, ortho-hydroxyphenylacetic acid can be found in a number of food items such as pigeon pea, jackfruit, rosemary, and purslane. This makes ortho-hydroxyphenylacetic acid a potential biomarker for the consumption of these food products. Ortho-hydroxyphenylacetic acid has been linked to the inborn metabolic disorders including phenylketonuria.	http://www.hmdb.ca/metabolites/HMDB0000669

Oxalic acid ; HMDB0002329	Oxalic acid, also known as oxalate or ethanedioic acid, belongs to the class of organic compounds known as dicarboxylic acids and derivatives. These are organic compounds containing exactly two carboxylic acid groups. Oxalic acid exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Oxalic acid has been found throughout most human tissues, and has also been primarily detected in saliva, urine, blood, and sweat. Within the cell, oxalic acid is primarily located in the peroxisome. Oxalic acid is also a parent compound for other transformation products, including but not limited to, oxalyl-CoA, methyl oxalate, and oxamide. Outside of the human body, oxalic acid can be found in a number of food items such as lingonberry, winged bean, opium poppy, and jostaberry. This makes oxalic acid a potential biomarker for the consumption of these food products. Oxalic acid is a potentially toxic compound. Oxalic acid has been found to be associated with the diseases known as hemodialysis; oxalic acid has also been linked to several inborn metabolic disorders including fumarase deficiency, primary hyperoxaluria I, and glycolic aciduria.	http://www.hmdb.ca/metabolites/HMDB0002329

Oxalic acid ; HMDB02329	Oxalic acid, also known as oxalate or ethanedioic acid, belongs to the class of organic compounds known as dicarboxylic acids and derivatives. These are organic compounds containing exactly two carboxylic acid groups. Oxalic acid exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Oxalic acid has been found throughout most human tissues, and has also been primarily detected in saliva, urine, blood, and sweat. Within the cell, oxalic acid is primarily located in the peroxisome. Oxalic acid is also a parent compound for other transformation products, including but not limited to, oxalyl-CoA, methyl oxalate, and oxamide. Outside of the human body, oxalic acid can be found in a number of food items such as lingonberry, winged bean, opium poppy, and jostaberry. This makes oxalic acid a potential biomarker for the consumption of these food products. Oxalic acid is a potentially toxic compound. Oxalic acid has been found to be associated with the diseases known as hemodialysis; oxalic acid has also been linked to several inborn metabolic disorders including fumarase deficiency, primary hyperoxaluria I, and glycolic aciduria.	http://www.hmdb.ca/metabolites/HMDB0002329

Oxoglutaric acid ; HMDB0000208	Oxoglutaric acid, also known as alpha-ketoglutarate or 2-oxoglutarate, belongs to the class of organic compounds known as gamma-keto acids and derivatives. These are organic compounds containing an aldehyde substituted with a keto group on the C4 carbon atom. Oxoglutaric acid exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Oxoglutaric acid has been detected in most biofluids, including saliva, urine, feces, and cerebrospinal fluid. Within the cell, oxoglutaric acid is primarily located in the mitochondria, endoplasmic reticulum, peroxisome and cytoplasm. Oxoglutaric acid exists in all eukaryotes, ranging from yeast to humans. Oxoglutaric acid participates in a number of enzymatic reactions. In particular, L-Lysine and oxoglutaric acid can be converted into saccharopine through its interaction with the enzyme Alpha-aminoadipic semialdehyde synthase, mitochondrial. Furthermore, Aminoadipic acid and oxoglutaric acid can be converted into oxoadipic acid and L-glutamic acid; which is mediated by the enzyme kynurenine/alpha-aminoadipate aminotransferase, mitochondrial. Furthermore, L-Alanine and oxoglutaric acid can be converted into L-glutamic acid and pyruvic acid through the action of the enzyme alanine aminotransferase 1. Furthermore, Oxoglutaric acid can be biosynthesized from L-glutamic acid through the action of the enzyme glutamate dehydrogenase 1, mitochondrial. Finally, Oxoglutaric acid can be biosynthesized from isocitric acid; which is mediated by the enzyme isocitrate dehydrogenase. In humans, oxoglutaric acid is involved in the glutamate metabolism pathway, the congenital lactic acidosis pathway, the tyrosine metabolism pathway, and the phenylalanine and tyrosine metabolism pathway. Oxoglutaric acid is also involved in several metabolic disorders, some of which include the sarcosinemia pathway, gaba-	http://www.hmdb.ca/metabolites/HMDB0000208

	transaminase deficiency, fumarase deficiency, and the glutaminolysis and cancer pathway. Outside of the human body, oxoglutaric acid can be found in a number of food items such as sweet basil, mulberry, malus (crab apple), and mexican oregano. This makes oxoglutaric acid a potential biomarker for the consumption of these food products. Oxoglutaric acid has been found to be associated with several diseases known as deafness, onychodystrophy, osteodystrophy, mental retardation, and seizures syndrome, schizophrenia, anoxia, and amish lethal microcephaly; oxoglutaric acid has also been linked to the inborn metabolic disorders including d-2-hydroxyglutaric aciduria.	

Oxoglutaric acid ; HMDB00208	Oxoglutaric acid, also known as alpha-ketoglutarate or 2-oxoglutarate, belongs to the class of organic compounds known as gamma-keto acids and derivatives. These are organic compounds containing an aldehyde substituted with a keto group on the C4 carbon atom. Oxoglutaric acid exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Oxoglutaric acid has been detected in most biofluids, including saliva, urine, feces, and cerebrospinal fluid. Within the cell, oxoglutaric acid is primarily located in the mitochondria, endoplasmic reticulum, peroxisome and cytoplasm. Oxoglutaric acid exists in all eukaryotes, ranging from yeast to humans. Oxoglutaric acid participates in a number of enzymatic reactions. In particular, L-Lysine and oxoglutaric acid can be converted into saccharopine through its interaction with the enzyme Alpha-aminoadipic semialdehyde synthase, mitochondrial. Furthermore, Aminoadipic acid and oxoglutaric acid can be converted into oxoadipic acid and L-glutamic acid; which is mediated by the enzyme kynurenine/alpha-aminoadipate aminotransferase, mitochondrial. Furthermore, L-Alanine and oxoglutaric acid can be converted into L-glutamic acid and pyruvic acid through the action of the enzyme alanine aminotransferase 1. Furthermore, Oxoglutaric acid can be biosynthesized from L-glutamic acid through the action of the enzyme glutamate dehydrogenase 1, mitochondrial. Finally, Oxoglutaric acid can be biosynthesized from isocitric acid; which is mediated by the enzyme isocitrate dehydrogenase. In humans, oxoglutaric acid is involved in the glutamate metabolism pathway, the congenital lactic acidosis pathway, the tyrosine metabolism pathway, and the phenylalanine and tyrosine metabolism pathway. Oxoglutaric acid is also involved in several metabolic disorders, some of which include the sarcosinemia pathway, gaba-	http://www.hmdb.ca/metabolites/HMDB0000208

	transaminase deficiency, fumarase deficiency, and the glutaminolysis and cancer pathway. Outside of the human body, oxoglutaric acid can be found in a number of food items such as sweet basil, mulberry, malus (crab apple), and mexican oregano. This makes oxoglutaric acid a potential biomarker for the consumption of these food products. Oxoglutaric acid has been found to be associated with several diseases known as deafness, onychodystrophy, osteodystrophy, mental retardation, and seizures syndrome, schizophrenia, anoxia, and amish lethal microcephaly; oxoglutaric acid has also been linked to the inborn metabolic disorders including d-2-hydroxyglutaric aciduria.	
Oxypurinol ; HMDB0000786	Oxypurinol, also known as oxoallopurinol or alloxanthine, belongs to the class of organic compounds known as xanthines. These are purine derivatives with a ketone group conjugated at carbons 2 and 6 of the purine moiety. Oxypurinol exists as a solid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). Oxypurinol has been detected in multiple biofluids, such as urine and blood. Within the cell, oxypurinol is primarily located in the cytoplasm. Oxypurinol can be converted into 7-isobutyl-5-methyl-2-(1-naphthylmethyl)-3-(4-pyridyl)alloxanthine.	http://www.hmdb.ca/metabolites/HMDB0000786
Oxypurinol ; HMDB00786	Oxypurinol, also known as oxoallopurinol or alloxanthine, belongs to the class of organic compounds known as xanthines. These are purine derivatives with a ketone group conjugated at carbons 2 and 6 of the purine moiety. Oxypurinol exists as a solid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). Oxypurinol has been detected in multiple biofluids, such as urine and blood. Within the cell, oxypurinol is primarily located in the cytoplasm. Oxypurinol can be converted into 7-isobutyl-5-methyl-2-(1-naphthylmethyl)-3-(4-pyridyl)alloxanthine.	http://www.hmdb.ca/metabolites/HMDB0000786

p-Cresol sulfate ; HMDB0011635	p-Cresol sulfate, also known as P-cresyl-sulphate, belongs to the class of organic compounds known as phenylsulfates. Phenylsulfates are compounds containing a sulfuric acid group conjugated to a phenyl group. p-Cresol sulfate is slightly soluble (in water) and an extremely strong acidic compound (based on its pKa). p-Cresol sulfate has been primarily detected in saliva, feces, urine, and blood. p-Cresol sulfate can be converted into p-cresol. p-Cresol sulfate is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0011635
p-Hydroxymandelic acid ; HMDB0000822	p-Hydroxymandelic acid, also known as 4-hydroxymandelate or 4-hydroxyphenylglycolate, belongs to the class of organic compounds known as 1-hydroxy-2-unsubstituted benzenoids. These are phenols that are unsubstituted at the 2-position. p-Hydroxymandelic acid exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). p-Hydroxymandelic acid has been detected in multiple biofluids, such as urine, blood, and vitreous humor. p-Hydroxymandelic acid can be biosynthesized from mandelic acid.	http://www.hmdb.ca/metabolites/HMDB0000822
p-Hydroxymandelic acid ; HMDB00822	p-Hydroxymandelic acid, also known as 4-hydroxymandelate or 4-hydroxyphenylglycolate, belongs to the class of organic compounds known as 1-hydroxy-2-unsubstituted benzenoids. These are phenols that are unsubstituted at the 2-position. p-Hydroxymandelic acid exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). p-Hydroxymandelic acid has been detected in multiple biofluids, such as urine, blood, and vitreous humor. p-Hydroxymandelic acid can be biosynthesized from mandelic acid.	http://www.hmdb.ca/metabolites/HMDB0000822

p-Hydroxyphenylacetic acid ; HMDB0000020	4-Hydroxyphenylacetic acid, also known as (p-hydroxyphenyl)acetate or 4-hydroxybenzeneacetate, belongs to the class of organic compounds known as 1-hydroxy-2-unsubstituted benzenoids. These are phenols that are unsubstituted at the 2-position. 4-Hydroxyphenylacetic acid exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). 4-Hydroxyphenylacetic acid has been found throughout most human tissues, and has also been detected in most biofluids, including cerebrospinal fluid, blood, feces, and urine. Within the cell, 4-hydroxyphenylacetic acid is primarily located in the cytoplasm. 4-Hydroxyphenylacetic acid exists in all eukaryotes, ranging from yeast to humans. In humans, 4-hydroxyphenylacetic acid is involved in the tyrosine metabolism pathway and the disulfiram action pathway. 4-Hydroxyphenylacetic acid is also involved in several metabolic disorders, some of which include the tyrosinemia type I pathway, the hawkinsinuria pathway, monoamine oxidase-a deficiency (mao-a), and tyrosinemia, transient, OF the newborn pathway. Outside of the human body, 4-hydroxyphenylacetic acid can be found in a number of food items such as evening primrose, corn, cocoa bean, and oat. This makes 4-hydroxyphenylacetic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000020

p-Hydroxyphenylacetic acid ; HMDB00020	4-Hydroxyphenylacetic acid, also known as (p-hydroxyphenyl)acetate or 4-hydroxybenzeneacetate, belongs to the class of organic compounds known as 1-hydroxy-2-unsubstituted benzenoids. These are phenols that are unsubstituted at the 2-position. 4-Hydroxyphenylacetic acid exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). 4-Hydroxyphenylacetic acid has been found throughout most human tissues, and has also been detected in most biofluids, including cerebrospinal fluid, blood, feces, and urine. Within the cell, 4-hydroxyphenylacetic acid is primarily located in the cytoplasm. 4-Hydroxyphenylacetic acid exists in all eukaryotes, ranging from yeast to humans. In humans, 4-hydroxyphenylacetic acid is involved in the tyrosine metabolism pathway and the disulfiram action pathway. 4-Hydroxyphenylacetic acid is also involved in several metabolic disorders, some of which include the tyrosinemia type I pathway, the hawkinsinuria pathway, monoamine oxidase-a deficiency (mao-a), and tyrosinemia, transient, OF the newborn pathway. Outside of the human body, 4-hydroxyphenylacetic acid can be found in a number of food items such as evening primrose, corn, cocoa bean, and oat. This makes 4-hydroxyphenylacetic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000020

Palmitic acid ; HMDB0000220	Palmitic acid, also known as palmitate or C16, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Palmitic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Palmitic acid has been found throughout most human tissues, and has also been detected in most biofluids, including sweat, feces, cerebrospinal fluid, and urine. Palmitic acid can be found anywhere throughout the human cell, such as in mitochondria, endoplasmic reticulum, peroxisome, and adiposome. Palmitic acid exists in all eukaryotes, ranging from yeast to humans. Cholesterol and palmitic acid can be biosynthesized from ce(22:2(13Z,16Z)); which is mediated by the enzyme lysosomal acid lipase/cholesteryl ester hydrolase. In humans, palmitic acid is involved in the zoledronate action pathway, the fatty acid metabolism pathway, steroid biosynthesis pathway, and the rosuvastatin action pathway. Palmitic acid is also involved in several metabolic disorders, some of which include short chain acyl CoA dehydrogenase deficiency (scad deficiency), medium chain acyl-CoA dehydrogenase deficiency (mcad), the hypercholesterolemia pathway, and the familial hypercholanemia (fhca) pathway. Outside of the human body, palmitic acid can be found in a number of food items such as lemon balm, tea, fireweed, and mentha (mint). This makes palmitic acid a potential biomarker for the consumption of these food products. Palmitic acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000220

Palmitic acid ; HMDB00220	Palmitic acid, also known as palmitate or C16, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Palmitic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Palmitic acid has been found throughout most human tissues, and has also been detected in most biofluids, including sweat, feces, cerebrospinal fluid, and urine. Palmitic acid can be found anywhere throughout the human cell, such as in mitochondria, endoplasmic reticulum, peroxisome, and adiposome. Palmitic acid exists in all eukaryotes, ranging from yeast to humans. Cholesterol and palmitic acid can be biosynthesized from ce(22:2(13Z,16Z)); which is mediated by the enzyme lysosomal acid lipase/cholesteryl ester hydrolase. In humans, palmitic acid is involved in the zoledronate action pathway, the fatty acid metabolism pathway, steroid biosynthesis pathway, and the rosuvastatin action pathway. Palmitic acid is also involved in several metabolic disorders, some of which include short chain acyl CoA dehydrogenase deficiency (scad deficiency), medium chain acyl-CoA dehydrogenase deficiency (mcad), the hypercholesterolemia pathway, and the familial hypercholanemia (fhca) pathway. Outside of the human body, palmitic acid can be found in a number of food items such as lemon balm, tea, fireweed, and mentha (mint). This makes palmitic acid a potential biomarker for the consumption of these food products. Palmitic acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000220

Palmitoleic acid ; HMDB0003229	cis-9-Palmitoleic acid, also known as palmitoleate or (Z)-9-hexadecenoic acid, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. cis-9-Palmitoleic acid exists as a liquid and is considered to be practically insoluble (in water) and relatively neutral. cis-9-Palmitoleic acid has been found in human skeletal muscle, adipose tissue and prostate tissues, and has also been detected in most biofluids, including blood, feces, urine, and saliva. Within the cell, cis-9-palmitoleic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. cis-9-Palmitoleic acid exists in all eukaryotes, ranging from yeast to humans. Outside of the human body, cis-9-palmitoleic acid can be found in a number of food items such as cashew nut, pineapple, safflower, and cloves. This makes cis-9-palmitoleic acid a potential biomarker for the consumption of these food products. cis-9-Palmitoleic acid has been linked to the inborn metabolic disorders including isovaleric acidemia.	http://www.hmdb.ca/metabolites/HMDB0003229

Palmitoleic acid ; HMDB03229	cis-9-Palmitoleic acid, also known as palmitoleate or (Z)-9-hexadecenoic acid, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. cis-9-Palmitoleic acid exists as a liquid and is considered to be practically insoluble (in water) and relatively neutral. cis-9-Palmitoleic acid has been found in human skeletal muscle, adipose tissue and prostate tissues, and has also been detected in most biofluids, including blood, feces, urine, and saliva. Within the cell, cis-9-palmitoleic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. cis-9-Palmitoleic acid exists in all eukaryotes, ranging from yeast to humans. Outside of the human body, cis-9-palmitoleic acid can be found in a number of food items such as cashew nut, pineapple, safflower, and cloves. This makes cis-9-palmitoleic acid a potential biomarker for the consumption of these food products. cis-9-Palmitoleic acid has been linked to the inborn metabolic disorders including isovaleric acidemia.	http://www.hmdb.ca/metabolites/HMDB0003229

Palmitoyl sphingomyelin ; HMDB0061712	SM(D18:1/16:0), also known as C16 sphingomyelin or N-PSPC, belongs to the class of organic compounds known as phosphosphingolipids. These are sphingolipids with a structure based on a sphingoid base that is attached to a phosphate head group. They differ from phosphonospingolipids which have a phosphonate head group. Thus, SM(D18:1/16:0) is considered to be a phosphosphingolipid lipid molecule. SM(D18:1/16:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. SM(D18:1/16:0) has been found in human brain tissue, and has also been detected in multiple biofluids, such as feces and blood. Within the cell, SM(D18:1/16:0) is primarily located in the membrane (predicted from logP), endosome, myelin sheath and axon. SM(D18:1/16:0) can be biosynthesized from hexadecanoic acid.	http://www.hmdb.ca/metabolites/HMDB0061712
Palmitoylethanolamide ; HMDB0002100	Palmitoyl-ea, also known as palmidrol or anandamide (16:0), belongs to the class of organic compounds known as carboximidic acids. These are organic acids with the general formula RC(=N)-OH (R=H, organic group). Thus, palmitoyl-ea is considered to be a fatty amide lipid molecule. Palmitoyl-ea exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Palmitoyl-ea has been detected in multiple biofluids, such as feces, blood, and cerebrospinal fluid. Within the cell, palmitoyl-ea is primarily located in the membrane (predicted from logP). Palmitoyl-ea can be biosynthesized from hexadecanoic acid. Outside of the human body, palmitoyl-ea can be found in eggs, nuts, and pulses. This makes palmitoyl-ea a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0002100

Palmitoylethanolamide ; HMDB02100	Palmitoyl-ea, also known as palmidrol or anandamide (16:0), belongs to the class of organic compounds known as carboximidic acids. These are organic acids with the general formula RC(=N)-OH (R=H, organic group). Thus, palmitoyl-ea is considered to be a fatty amide lipid molecule. Palmitoyl-ea exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Palmitoyl-ea has been detected in multiple biofluids, such as feces, blood, and cerebrospinal fluid. Within the cell, palmitoyl-ea is primarily located in the membrane (predicted from logP). Palmitoyl-ea can be biosynthesized from hexadecanoic acid. Outside of the human body, palmitoyl-ea can be found in eggs, nuts, and pulses. This makes palmitoyl-ea a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0002100
Palmitoylglycine ; HMDB0013034	N-Palmitoyl glycine, also known as hexadecanoylglycine or glycine stearamide, belongs to the class of organic compounds known as n-acyl-alpha amino acids. N-acyl-alpha amino acids are compounds containing an alpha amino acid which bears an acyl group at its terminal nitrogen atom. Thus, N-palmitoyl glycine is considered to be a fatty amide lipid molecule. N-Palmitoyl glycine is considered to be a practically insoluble (in water) and relatively neutral molecule. Within the cell, N-palmitoyl glycine is primarily located in the membrane (predicted from logP). N-Palmitoyl glycine can be biosynthesized from hexadecanoic acid.	http://www.hmdb.ca/metabolites/HMDB0013034

Pantoprazole ; HMDB0005017	Pantoprazole, also known as protonix or SK and F 96022, belongs to the class of organic compounds known as sulfinylbenzimidazoles. These are polycyclic aromatic compounds containing a sulfinyl group attached at the position 2 of a benzimidazole moiety. Pantoprazole exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Pantoprazole has been primarily detected in blood. Within the cell, pantoprazole is primarily located in the membrane (predicted from logP). In humans, pantoprazole is involved in the pantoprazole metabolism pathway and the pantoprazole action pathway.	http://www.hmdb.ca/metabolites/HMDB0005017
Pantoprazole ; HMDB05017	Pantoprazole, also known as protonix or SK and F 96022, belongs to the class of organic compounds known as sulfinylbenzimidazoles. These are polycyclic aromatic compounds containing a sulfinyl group attached at the position 2 of a benzimidazole moiety. Pantoprazole exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Pantoprazole has been primarily detected in blood. Within the cell, pantoprazole is primarily located in the membrane (predicted from logP). In humans, pantoprazole is involved in the pantoprazole metabolism pathway and the pantoprazole action pathway.	http://www.hmdb.ca/metabolites/HMDB0005017

Pantothenic acid ; HMDB0000210	(R)-Pantothenic acid, also known as vitamin B5 or (R)-pantothenate, belongs to the class of organic compounds known as secondary alcohols. Secondary alcohols are compounds containing a secondary alcohol functional group, with the general structure HOC(R)(R') (R,R'=alkyl, aryl) (R)-Pantothenic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa) (R)-Pantothenic acid has been found in human prostate and liver tissues, and has also been detected in most biofluids, including blood, urine, breast milk, and feces. Within the cell, (R)-pantothenic acid is primarily located in the mitochondria and cytoplasm (R)-Pantothenic acid exists in all eukaryotes, ranging from yeast to humans. In humans, (R)-pantothenic acid is involved in pantothenate and CoA biosynthesis pathway and the Beta-alanine metabolism pathway (R)-Pantothenic acid is also involved in a few metabolic disorders, which include ureidopropionase deficiency, gaba-transaminase deficiency, and the carnosinuria, carnosinemia pathway. Outside of the human body, (R)-pantothenic acid can be found in a number of food items such as blackcurrant, oxheart cabbage, wakame, and opium poppy. This makes (R)-pantothenic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000210

Pantothenic acid ; HMDB00210	(R)-Pantothenic acid, also known as vitamin B5 or (R)-pantothenate, belongs to the class of organic compounds known as secondary alcohols. Secondary alcohols are compounds containing a secondary alcohol functional group, with the general structure HOC(R)(R') (R,R'=alkyl, aryl) (R)-Pantothenic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa) (R)-Pantothenic acid has been found in human prostate and liver tissues, and has also been detected in most biofluids, including blood, urine, breast milk, and feces. Within the cell, (R)-pantothenic acid is primarily located in the mitochondria and cytoplasm (R)-Pantothenic acid exists in all eukaryotes, ranging from yeast to humans. In humans, (R)-pantothenic acid is involved in pantothenate and CoA biosynthesis pathway and the Beta-alanine metabolism pathway (R)-Pantothenic acid is also involved in a few metabolic disorders, which include ureidopropionase deficiency, gaba-transaminase deficiency, and the carnosinuria, carnosinemia pathway. Outside of the human body, (R)-pantothenic acid can be found in a number of food items such as blackcurrant, oxheart cabbage, wakame, and opium poppy. This makes (R)-pantothenic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000210

Pantothenol ; HMDB0004231	Pantothenol, also known as DL-panthenol or bepanthen, belongs to the class of organic compounds known as n-acyl amines. N-acyl amines are compounds containing a fatty acid moiety linked to an amine group through an ester linkage. Pantothenol exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Pantothenol has been found in human epidermis tissue, and has also been detected in multiple biofluids, such as saliva and urine. Within the cell, pantothenol is primarily located in the cytoplasm. In humans, pantothenol is involved in pantothenate and CoA biosynthesis pathway.	http://www.hmdb.ca/metabolites/HMDB0004231
Pantothenol ; HMDB04231	Pantothenol, also known as DL-panthenol or bepanthen, belongs to the class of organic compounds known as n-acyl amines. N-acyl amines are compounds containing a fatty acid moiety linked to an amine group through an ester linkage. Pantothenol exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Pantothenol has been found in human epidermis tissue, and has also been detected in multiple biofluids, such as saliva and urine. Within the cell, pantothenol is primarily located in the cytoplasm. In humans, pantothenol is involved in pantothenate and CoA biosynthesis pathway.	http://www.hmdb.ca/metabolites/HMDB0004231

Paracetamol sulfate ; HMDB0059911	Paracetamol sulfate, also known as acetaminophen sulphate, belongs to the class of organic compounds known as phenylsulfates. Phenylsulfates are compounds containing a sulfuric acid group conjugated to a phenyl group. Paracetamol sulfate is slightly soluble (in water) and an extremely strong acidic compound (based on its pKa). Paracetamol sulfate has been found in human liver and kidney tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, paracetamol sulfate is primarily located in the cytoplasm. Paracetamol sulfate participates in a number of enzymatic reactions. In particular, Paracetamol sulfate and adenosine 3',5'-diphosphate can be biosynthesized from acetaminophen and phosphoadenosine phosphosulfate through the action of the enzymes sulfotransferase 1A1, estrogen sulfotransferase, bile salt sulfotransferase, and sulfotransferase 1a3/1a4. In addition, Paracetamol sulfate can be converted into paracetamol sulfate through the action of the enzyme ATP-binding cassette sub-family g member 2. In humans, paracetamol sulfate is involved in the acetaminophen metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0059911

Paraxanthine ; HMDB0001860	Paraxanthine, also known as P-xanthine, belongs to the class of organic compounds known as xanthines. These are purine derivatives with a ketone group conjugated at carbons 2 and 6 of the purine moiety. Paraxanthine exists as a solid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). Paraxanthine has been found in human prostate, liver and kidney tissues, and has also been detected in most biofluids, including saliva, cerebrospinal fluid, blood, and urine. Within the cell, paraxanthine is primarily located in the cytoplasm. Paraxanthine participates in a number of enzymatic reactions. In particular, Paraxanthine and formaldehyde can be biosynthesized from caffeine; which is mediated by the enzyme cytochrome P450 1A2. In addition, Paraxanthine and acetyl-CoA can be converted into 5-acetylamino-6-formylamino-3-methyluracil; which is mediated by the enzyme arylamine N-acetyltransferase 2. In humans, paraxanthine is involved in the caffeine metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0001860

PC(14:0/16:0) ; HMDB0007869	PC(14:0/16:0), also known as MPPC or PC(30:0), belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(14:0/16:0) is considered to be a glycerophosphocholine lipid molecule. PC(14:0/16:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(14:0/16:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(14:0/16:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(14:0/16:0) exists in all eukaryotes, ranging from yeast to humans. S-Adenosylhomocysteine and PC(14:0/16:0) can be biosynthesized from pe-nme2(14:0/16:0) and S-adenosylmethionine through its interaction with the enzyme phosphatidyl-N-methylethanolamine N-methyltransferase.	http://www.hmdb.ca/metabolites/HMDB0007869

PC(14:0/16:0) ; HMDB07869	PC(14:0/16:0), also known as MPPC or PC(30:0), belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(14:0/16:0) is considered to be a glycerophosphocholine lipid molecule. PC(14:0/16:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(14:0/16:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(14:0/16:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(14:0/16:0) exists in all eukaryotes, ranging from yeast to humans. S-Adenosylhomocysteine and PC(14:0/16:0) can be biosynthesized from pe-nme2(14:0/16:0) and S-adenosylmethionine through its interaction with the enzyme phosphatidyl-N-methylethanolamine N-methyltransferase.	http://www.hmdb.ca/metabolites/HMDB0007869

PC(14:0/16:1(9Z)) ; HMDB0007870	PC(14:0/16:1(9Z)), also known as gpcho(14:0/16:1) or gpcho(30:1), belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(14:0/16:1(9Z)) is considered to be a glycerophosphocholine lipid molecule. PC(14:0/16:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(14:0/16:1(9Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(14:0/16:1(9Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(14:0/16:1(9Z)) exists in all eukaryotes, ranging from yeast to humans. S-Adenosylhomocysteine and PC(14:0/16:1(9Z)) can be biosynthesized from pe-nme2(14:0/16:1(9Z)) and S-adenosylmethionine; which is catalyzed by the enzyme phosphatidyl-N-methylethanolamine N-methyltransferase.	http://www.hmdb.ca/metabolites/HMDB0007870

PC(14:0/16:1(9Z)) ; HMDB07870	PC(14:0/16:1(9Z)), also known as gpcho(14:0/16:1) or gpcho(30:1), belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(14:0/16:1(9Z)) is considered to be a glycerophosphocholine lipid molecule. PC(14:0/16:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(14:0/16:1(9Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(14:0/16:1(9Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(14:0/16:1(9Z)) exists in all eukaryotes, ranging from yeast to humans. S-Adenosylhomocysteine and PC(14:0/16:1(9Z)) can be biosynthesized from pe-nme2(14:0/16:1(9Z)) and S-adenosylmethionine; which is catalyzed by the enzyme phosphatidyl-N-methylethanolamine N-methyltransferase.	http://www.hmdb.ca/metabolites/HMDB0007870

PC(14:0/18:0) ; HMDB0007871	PC(14:0/18:0), also known as 1m-2S-PC or gpcho(32:0), belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(14:0/18:0) is considered to be a glycerophosphocholine lipid molecule. PC(14:0/18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(14:0/18:0) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(14:0/18:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(14:0/18:0) exists in all eukaryotes, ranging from yeast to humans. S-Adenosylhomocysteine and PC(14:0/18:0) can be biosynthesized from pe-nme2(14:0/18:0) and S-adenosylmethionine through its interaction with the enzyme phosphatidyl-N-methylethanolamine N-methyltransferase.	http://www.hmdb.ca/metabolites/HMDB0007871

PC(14:0/18:0) ; HMDB07871	PC(14:0/18:0), also known as 1m-2S-PC or gpcho(32:0), belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(14:0/18:0) is considered to be a glycerophosphocholine lipid molecule. PC(14:0/18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(14:0/18:0) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(14:0/18:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(14:0/18:0) exists in all eukaryotes, ranging from yeast to humans. S-Adenosylhomocysteine and PC(14:0/18:0) can be biosynthesized from pe-nme2(14:0/18:0) and S-adenosylmethionine through its interaction with the enzyme phosphatidyl-N-methylethanolamine N-methyltransferase.	http://www.hmdb.ca/metabolites/HMDB0007871

PC(14:0/18:1(9Z)) ; HMDB0007873	PC(14:0/18:1(9Z)), also known as gpcho(14:0/18:1) or mopc CPD, belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(14:0/18:1(9Z)) is considered to be a glycerophosphocholine lipid molecule. PC(14:0/18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(14:0/18:1(9Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, PC(14:0/18:1(9Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(14:0/18:1(9Z)) exists in all eukaryotes, ranging from yeast to humans. S-Adenosylhomocysteine and PC(14:0/18:1(9Z)) can be biosynthesized from pe-nme2(14:0/18:1(9Z)) and S-adenosylmethionine; which is catalyzed by the enzyme phosphatidyl-N-methylethanolamine N-methyltransferase.	http://www.hmdb.ca/metabolites/HMDB0007873

PC(14:0/18:1(9Z)) ; HMDB07873	PC(14:0/18:1(9Z)), also known as gpcho(14:0/18:1) or mopc CPD, belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(14:0/18:1(9Z)) is considered to be a glycerophosphocholine lipid molecule. PC(14:0/18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(14:0/18:1(9Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, PC(14:0/18:1(9Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(14:0/18:1(9Z)) exists in all eukaryotes, ranging from yeast to humans. S-Adenosylhomocysteine and PC(14:0/18:1(9Z)) can be biosynthesized from pe-nme2(14:0/18:1(9Z)) and S-adenosylmethionine; which is catalyzed by the enzyme phosphatidyl-N-methylethanolamine N-methyltransferase.	http://www.hmdb.ca/metabolites/HMDB0007873

PC(14:0/18:2(9Z,12Z)) ; HMDB0007874	PC(14:0/18:2(9Z,12Z)), also known as gpcho(14:0/18:2) or PC(32:2), belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(14:0/18:2(9Z,12Z)) is considered to be a glycerophosphocholine lipid molecule. PC(14:0/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(14:0/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, PC(14:0/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(14:0/18:2(9Z,12Z)) participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and PC(14:0/18:2(9Z,12Z)) can be biosynthesized from S-adenosylmethionine and pe-nme2(14:0/18:2(9Z,12Z)) through the action of the enzyme phosphatidylethanolamine N-methyltransferase. Furthermore, Cytidine monophosphate and PC(14:0/18:2(9Z,12Z)) can be biosynthesized from CDP-choline and DG(14:0/18:2(9Z,12Z)/0:0) through the action of the enzyme choline/ethanolaminephosphotransferase. Finally, PC(14:0/18:2(9Z,12Z)) and L-serine can be converted into choline and PS(14:0/18:2(9Z,12Z)); which is catalyzed by the enzyme phosphatidylserine synthase. In humans, PC(14:0/18:2(9Z,12Z)) is involved in phosphatidylethanolamine biosynthesis pe(14:0/18:2(9Z,12Z)) pathway and phosphatidylcholine biosynthesis PC(14:0/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0007874

PC(14:0/18:2(9Z,12Z)) ; HMDB07874	PC(14:0/18:2(9Z,12Z)), also known as gpcho(14:0/18:2) or PC(32:2), belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(14:0/18:2(9Z,12Z)) is considered to be a glycerophosphocholine lipid molecule. PC(14:0/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(14:0/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, PC(14:0/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(14:0/18:2(9Z,12Z)) participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and PC(14:0/18:2(9Z,12Z)) can be biosynthesized from S-adenosylmethionine and pe-nme2(14:0/18:2(9Z,12Z)) through the action of the enzyme phosphatidylethanolamine N-methyltransferase. Furthermore, Cytidine monophosphate and PC(14:0/18:2(9Z,12Z)) can be biosynthesized from CDP-choline and DG(14:0/18:2(9Z,12Z)/0:0) through the action of the enzyme choline/ethanolaminephosphotransferase. Finally, PC(14:0/18:2(9Z,12Z)) and L-serine can be converted into choline and PS(14:0/18:2(9Z,12Z)); which is catalyzed by the enzyme phosphatidylserine synthase. In humans, PC(14:0/18:2(9Z,12Z)) is involved in phosphatidylethanolamine biosynthesis pe(14:0/18:2(9Z,12Z)) pathway and phosphatidylcholine biosynthesis PC(14:0/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0007874

PC(14:0/20:4(5Z,8Z,11Z,14Z)) ; HMDB0007883	PC(14:0/20:4(5Z,8Z,11Z,14Z)), also known as phosphatidylcholine(14:0/20:4) or gpcho(14:0/20:4), belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(14:0/20:4(5Z,8Z,11Z,14Z)) is considered to be a glycerophosphocholine lipid molecule. PC(14:0/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(14:0/20:4(5Z,8Z,11Z,14Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, PC(14:0/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. In humans, PC(14:0/20:4(5Z,8Z,11Z,14Z)) is involved in phosphatidylcholine biosynthesis PC(14:0/20:4(5Z,8Z,11Z,14Z)) pathway, the bromfenac action pathway, the rofecoxib action pathway, and the meloxicam action pathway. PC(14:0/20:4(5Z,8Z,11Z,14Z)) is also involved in a couple of metabolic disorders, which include leukotriene C4 synthesis deficiency and the tiaprofenic Acid action pathway.	http://www.hmdb.ca/metabolites/HMDB0007883

PC(14:0/20:4(5Z,8Z,11Z,14Z)) ; HMDB07883	PC(14:0/20:4(5Z,8Z,11Z,14Z)), also known as phosphatidylcholine(14:0/20:4) or gpcho(14:0/20:4), belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(14:0/20:4(5Z,8Z,11Z,14Z)) is considered to be a glycerophosphocholine lipid molecule. PC(14:0/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(14:0/20:4(5Z,8Z,11Z,14Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, PC(14:0/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. In humans, PC(14:0/20:4(5Z,8Z,11Z,14Z)) is involved in phosphatidylcholine biosynthesis PC(14:0/20:4(5Z,8Z,11Z,14Z)) pathway, the bromfenac action pathway, the rofecoxib action pathway, and the meloxicam action pathway. PC(14:0/20:4(5Z,8Z,11Z,14Z)) is also involved in a couple of metabolic disorders, which include leukotriene C4 synthesis deficiency and the tiaprofenic Acid action pathway.	http://www.hmdb.ca/metabolites/HMDB0007883

PC(16:0/18:0) ; HMDB0007970	PC(16:0/18:0), also known as gpcho(34:0) or lecithin, belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(16:0/18:0) is considered to be a glycerophosphocholine lipid molecule. PC(16:0/18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(16:0/18:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(16:0/18:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(16:0/18:0) exists in all eukaryotes, ranging from yeast to humans. S-Adenosylhomocysteine and PC(16:0/18:0) can be biosynthesized from pe-nme2(16:0/18:0) and S-adenosylmethionine; which is catalyzed by the enzyme phosphatidyl-N-methylethanolamine N-methyltransferase.	http://www.hmdb.ca/metabolites/HMDB0007970

PC(16:0/18:0) ; HMDB07970	PC(16:0/18:0), also known as gpcho(34:0) or lecithin, belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(16:0/18:0) is considered to be a glycerophosphocholine lipid molecule. PC(16:0/18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(16:0/18:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(16:0/18:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(16:0/18:0) exists in all eukaryotes, ranging from yeast to humans. S-Adenosylhomocysteine and PC(16:0/18:0) can be biosynthesized from pe-nme2(16:0/18:0) and S-adenosylmethionine; which is catalyzed by the enzyme phosphatidyl-N-methylethanolamine N-methyltransferase.	http://www.hmdb.ca/metabolites/HMDB0007970

PC(16:0/18:1(9Z)) ; HMDB0007972	PC(16:0/18:1(9Z)), also known as 1-POPC or PC(16:0/18:1), belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(16:0/18:1(9Z)) is considered to be a glycerophosphocholine lipid molecule. PC(16:0/18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(16:0/18:1(9Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(16:0/18:1(9Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(16:0/18:1(9Z)) exists in all eukaryotes, ranging from yeast to humans. S-Adenosylhomocysteine and PC(16:0/18:1(9Z)) can be biosynthesized from pe-nme2(16:0/18:1(9Z)) and S-adenosylmethionine through its interaction with the enzyme phosphatidyl-N-methylethanolamine N-methyltransferase. Outside of the human body, PC(16:0/18:1(9Z)) can be found in a number of food items such as babassu palm, tinda, common sage, and breadfruit. This makes PC(16:0/18:1(9Z)) a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0007972

PC(16:0/18:1(9Z)) ; HMDB07972	PC(16:0/18:1(9Z)), also known as 1-POPC or PC(16:0/18:1), belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(16:0/18:1(9Z)) is considered to be a glycerophosphocholine lipid molecule. PC(16:0/18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(16:0/18:1(9Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(16:0/18:1(9Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(16:0/18:1(9Z)) exists in all eukaryotes, ranging from yeast to humans. S-Adenosylhomocysteine and PC(16:0/18:1(9Z)) can be biosynthesized from pe-nme2(16:0/18:1(9Z)) and S-adenosylmethionine through its interaction with the enzyme phosphatidyl-N-methylethanolamine N-methyltransferase. Outside of the human body, PC(16:0/18:1(9Z)) can be found in a number of food items such as babassu palm, tinda, common sage, and breadfruit. This makes PC(16:0/18:1(9Z)) a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0007972

PC(16:0/18:2(9Z,12Z)) ; HMDB0007973	PC(16:0/18:2(9Z,12Z)), also known as GPC(16:0/18:2) or gpcho 16:0/18:2(9Z,12Z), belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(16:0/18:2(9Z,12Z)) is considered to be a glycerophosphocholine lipid molecule. PC(16:0/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(16:0/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(16:0/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(16:0/18:2(9Z,12Z)) participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and PC(16:0/18:2(9Z,12Z)) can be biosynthesized from S-adenosylmethionine and pe-nme2(16:0/18:2(9Z,12Z)) through the action of the enzyme phosphatidylethanolamine N-methyltransferase. Furthermore, Cytidine monophosphate and PC(16:0/18:2(9Z,12Z)) can be biosynthesized from CDP-choline and DG(16:0/18:2(9Z,12Z)/0:0); which is mediated by the enzyme choline/ethanolaminephosphotransferase. Finally, PC(16:0/18:2(9Z,12Z)) and L-serine can be converted into choline and PS(16:0/18:2(9Z,12Z)); which is catalyzed by the enzyme phosphatidylserine synthase. In humans, PC(16:0/18:2(9Z,12Z)) is involved in phosphatidylcholine biosynthesis PC(16:0/18:2(9Z,12Z)) pathway and phosphatidylethanolamine biosynthesis pe(16:0/18:2(9Z,12Z)) pathway. Outside of the human body, PC(16:0/18:2(9Z,12Z)) can be found in a number of food items such as jujube, common oregano, muskmelon, and beech nut. This	http://www.hmdb.ca/metabolites/HMDB0007973

	makes PC(16:0/18:2(9Z,12Z)) a potential biomarker for the consumption of these food products.	

PC(16:0/18:2(9Z,12Z)) ; HMDB07973	PC(16:0/18:2(9Z,12Z)), also known as GPC(16:0/18:2) or gpcho 16:0/18:2(9Z,12Z), belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(16:0/18:2(9Z,12Z)) is considered to be a glycerophosphocholine lipid molecule. PC(16:0/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(16:0/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(16:0/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(16:0/18:2(9Z,12Z)) participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and PC(16:0/18:2(9Z,12Z)) can be biosynthesized from S-adenosylmethionine and pe-nme2(16:0/18:2(9Z,12Z)) through the action of the enzyme phosphatidylethanolamine N-methyltransferase. Furthermore, Cytidine monophosphate and PC(16:0/18:2(9Z,12Z)) can be biosynthesized from CDP-choline and DG(16:0/18:2(9Z,12Z)/0:0); which is mediated by the enzyme choline/ethanolaminephosphotransferase. Finally, PC(16:0/18:2(9Z,12Z)) and L-serine can be converted into choline and PS(16:0/18:2(9Z,12Z)); which is catalyzed by the enzyme phosphatidylserine synthase. In humans, PC(16:0/18:2(9Z,12Z)) is involved in phosphatidylcholine biosynthesis PC(16:0/18:2(9Z,12Z)) pathway and phosphatidylethanolamine biosynthesis pe(16:0/18:2(9Z,12Z)) pathway. Outside of the human body, PC(16:0/18:2(9Z,12Z)) can be found in a number of food items such as jujube, common oregano, muskmelon, and beech nut. This	http://www.hmdb.ca/metabolites/HMDB0007973

	makes PC(16:0/18:2(9Z,12Z)) a potential biomarker for the consumption of these food products.	

PC(16:0/20:4(8Z,11Z,14Z,17Z)) ; HMDB0007983	PC(16:0/20:4(8Z,11Z,14Z,17Z)), also known as phosphatidylcholine(16:0/20:4) or 1-palmitoyl-2-eicsoate, belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(16:0/20:4(8Z,11Z,14Z,17Z)) is considered to be a glycerophosphocholine lipid molecule. PC(16:0/20:4(8Z,11Z,14Z,17Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(16:0/20:4(8Z,11Z,14Z,17Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(16:0/20:4(8Z,11Z,14Z,17Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(16:0/20:4(8Z,11Z,14Z,17Z)) participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and PC(16:0/20:4(8Z,11Z,14Z,17Z)) can be biosynthesized from S-adenosylmethionine and pe-nme2(16:0/20:4(8Z,11Z,14Z,17Z)) ; which is catalyzed by the enzyme phosphatidylethanolamine N-methyltransferase. Furthermore, Cytidine monophosphate and PC(16:0/20:4(8Z,11Z,14Z,17Z)) can be biosynthesized from CDP-choline and DG(16:0/20:4(8Z,11Z,14Z,17Z)/0:0); which is mediated by the enzyme choline/ethanolaminephosphotransferase. Finally, PC(16:0/20:4(8Z,11Z,14Z,17Z)) and L-serine can be converted into choline and PS(16:0/20:4(8Z,11Z,14Z,17Z)); which is catalyzed by the enzyme phosphatidylserine synthase. In humans, PC(16:0/20:4(8Z,11Z,14Z,17Z)) is involved in phosphatidylcholine biosynthesis PC(16:0/20:4(8Z,11Z,14Z,17Z)) pathway and phosphatidylethanolamine	http://www.hmdb.ca/metabolites/HMDB0007983

	biosynthesis pe(16:0/20:4(8Z,11Z,14Z,17Z)) pathway.	

PC(16:0/20:4(8Z,11Z,14Z,17Z)) ; HMDB07983	PC(16:0/20:4(8Z,11Z,14Z,17Z)), also known as phosphatidylcholine(16:0/20:4) or 1-palmitoyl-2-eicsoate, belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(16:0/20:4(8Z,11Z,14Z,17Z)) is considered to be a glycerophosphocholine lipid molecule. PC(16:0/20:4(8Z,11Z,14Z,17Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(16:0/20:4(8Z,11Z,14Z,17Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(16:0/20:4(8Z,11Z,14Z,17Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(16:0/20:4(8Z,11Z,14Z,17Z)) participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and PC(16:0/20:4(8Z,11Z,14Z,17Z)) can be biosynthesized from S-adenosylmethionine and pe-nme2(16:0/20:4(8Z,11Z,14Z,17Z)) ; which is catalyzed by the enzyme phosphatidylethanolamine N-methyltransferase. Furthermore, Cytidine monophosphate and PC(16:0/20:4(8Z,11Z,14Z,17Z)) can be biosynthesized from CDP-choline and DG(16:0/20:4(8Z,11Z,14Z,17Z)/0:0); which is mediated by the enzyme choline/ethanolaminephosphotransferase. Finally, PC(16:0/20:4(8Z,11Z,14Z,17Z)) and L-serine can be converted into choline and PS(16:0/20:4(8Z,11Z,14Z,17Z)); which is catalyzed by the enzyme phosphatidylserine synthase. In humans, PC(16:0/20:4(8Z,11Z,14Z,17Z)) is involved in phosphatidylcholine biosynthesis PC(16:0/20:4(8Z,11Z,14Z,17Z)) pathway and phosphatidylethanolamine	http://www.hmdb.ca/metabolites/HMDB0007983

	biosynthesis pe(16:0/20:4(8Z,11Z,14Z,17Z)) pathway.	

PC(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) ; HMDB0007991	PC(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)), also known as PC(16:0/22:6) or PC(38:6), belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is considered to be a glycerophosphocholine lipid molecule. PC(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and PC(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) can be biosynthesized from S-adenosylmethionine and pe-nme2(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) through its interaction with the enzyme phosphatidylethanolamine N-methyltransferase. Furthermore, Cytidine monophosphate and PC(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) can be biosynthesized from CDP-choline and DG(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0); which is catalyzed by the enzyme choline/ethanolaminephosphotransferase. Finally, PC(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) and L-serine can be converted into choline and PS(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)); which is catalyzed by the enzyme phosphatidylserine synthase. In humans, PC(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is involved in phosphatidylcholine biosynthesis PC(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) pathway and phosphatidylethanolamine biosynthesis	http://www.hmdb.ca/metabolites/HMDB0007991

	pe(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) pathway.	

PC(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) ; HMDB07991	PC(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)), also known as PC(16:0/22:6) or PC(38:6), belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is considered to be a glycerophosphocholine lipid molecule. PC(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and PC(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) can be biosynthesized from S-adenosylmethionine and pe-nme2(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) through its interaction with the enzyme phosphatidylethanolamine N-methyltransferase. Furthermore, Cytidine monophosphate and PC(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) can be biosynthesized from CDP-choline and DG(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0); which is catalyzed by the enzyme choline/ethanolaminephosphotransferase. Finally, PC(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) and L-serine can be converted into choline and PS(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)); which is catalyzed by the enzyme phosphatidylserine synthase. In humans, PC(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is involved in phosphatidylcholine biosynthesis PC(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) pathway and phosphatidylethanolamine biosynthesis	http://www.hmdb.ca/metabolites/HMDB0007991

	pe(16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) pathway.	

PC(16:1(9Z)/18:2(9Z,12Z)) ; HMDB0008006	PC(16:1(9Z)/18:2(9Z,12Z)), also known as gpcho(16:1/18:2) or lecithin, belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(16:1(9Z)/18:2(9Z,12Z)) is considered to be a glycerophosphocholine lipid molecule. PC(16:1(9Z)/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(16:1(9Z)/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(16:1(9Z)/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(16:1(9Z)/18:2(9Z,12Z)) participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and PC(16:1(9Z)/18:2(9Z,12Z)) can be biosynthesized from S-adenosylmethionine and pe-nme2(16:1(9Z)/18:2(9Z,12Z)) through the action of the enzyme phosphatidylethanolamine N-methyltransferase. Furthermore, Cytidine monophosphate and PC(16:1(9Z)/18:2(9Z,12Z)) can be biosynthesized from CDP-choline and DG(16:1(9Z)/18:2(9Z,12Z)/0:0) through its interaction with the enzyme choline/ethanolaminephosphotransferase. Finally, PC(16:1(9Z)/18:2(9Z,12Z)) and L-serine can be converted into choline and PS(16:1(9Z)/18:2(9Z,12Z)) through its interaction with the enzyme phosphatidylserine synthase. In humans, PC(16:1(9Z)/18:2(9Z,12Z)) is involved in phosphatidylcholine biosynthesis PC(16:1(9Z)/18:2(9Z,12Z)) pathway and phosphatidylethanolamine biosynthesis pe(16:1(9Z)/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0008006

PC(16:1(9Z)/18:2(9Z,12Z)) ; HMDB08006	PC(16:1(9Z)/18:2(9Z,12Z)), also known as gpcho(16:1/18:2) or lecithin, belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(16:1(9Z)/18:2(9Z,12Z)) is considered to be a glycerophosphocholine lipid molecule. PC(16:1(9Z)/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(16:1(9Z)/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(16:1(9Z)/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(16:1(9Z)/18:2(9Z,12Z)) participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and PC(16:1(9Z)/18:2(9Z,12Z)) can be biosynthesized from S-adenosylmethionine and pe-nme2(16:1(9Z)/18:2(9Z,12Z)) through the action of the enzyme phosphatidylethanolamine N-methyltransferase. Furthermore, Cytidine monophosphate and PC(16:1(9Z)/18:2(9Z,12Z)) can be biosynthesized from CDP-choline and DG(16:1(9Z)/18:2(9Z,12Z)/0:0) through its interaction with the enzyme choline/ethanolaminephosphotransferase. Finally, PC(16:1(9Z)/18:2(9Z,12Z)) and L-serine can be converted into choline and PS(16:1(9Z)/18:2(9Z,12Z)) through its interaction with the enzyme phosphatidylserine synthase. In humans, PC(16:1(9Z)/18:2(9Z,12Z)) is involved in phosphatidylcholine biosynthesis PC(16:1(9Z)/18:2(9Z,12Z)) pathway and phosphatidylethanolamine biosynthesis pe(16:1(9Z)/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0008006

PC(18:0/18:0) ; HMDB0008036	PC(18:0/18:0), also known as gpcho(36:0) or PC (18:0)2, belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(18:0/18:0) is considered to be a glycerophosphocholine lipid molecule. PC(18:0/18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(18:0/18:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(18:0/18:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(18:0/18:0) exists in all eukaryotes, ranging from yeast to humans. PC(18:0/18:0) participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and PC(18:0/18:0) can be biosynthesized from S-adenosylmethionine and pe-nme2(18:0/18:0) through the action of the enzyme phosphatidylethanolamine N-methyltransferase. Furthermore, Cytidine monophosphate and PC(18:0/18:0) can be biosynthesized from CDP-choline and DG(18:0/18:0/0:0) through its interaction with the enzyme choline/ethanolaminephosphotransferase. Finally, PC(18:0/18:0) and L-serine can be converted into choline and PS(18:0/18:0); which is catalyzed by the enzyme phosphatidylserine synthase. In humans, PC(18:0/18:0) is involved in phosphatidylethanolamine biosynthesis pe(18:0/18:0) pathway and phosphatidylcholine biosynthesis PC(18:0/18:0) pathway.	http://www.hmdb.ca/metabolites/HMDB0008036

PC(18:0/18:0) ; HMDB08036	PC(18:0/18:0), also known as gpcho(36:0) or PC (18:0)2, belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(18:0/18:0) is considered to be a glycerophosphocholine lipid molecule. PC(18:0/18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(18:0/18:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(18:0/18:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(18:0/18:0) exists in all eukaryotes, ranging from yeast to humans. PC(18:0/18:0) participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and PC(18:0/18:0) can be biosynthesized from S-adenosylmethionine and pe-nme2(18:0/18:0) through the action of the enzyme phosphatidylethanolamine N-methyltransferase. Furthermore, Cytidine monophosphate and PC(18:0/18:0) can be biosynthesized from CDP-choline and DG(18:0/18:0/0:0) through its interaction with the enzyme choline/ethanolaminephosphotransferase. Finally, PC(18:0/18:0) and L-serine can be converted into choline and PS(18:0/18:0); which is catalyzed by the enzyme phosphatidylserine synthase. In humans, PC(18:0/18:0) is involved in phosphatidylethanolamine biosynthesis pe(18:0/18:0) pathway and phosphatidylcholine biosynthesis PC(18:0/18:0) pathway.	http://www.hmdb.ca/metabolites/HMDB0008036

PC(18:0/18:1(9Z)) ; HMDB0008038	PC(18:0/18:1(9Z)), also known as sopc or 18:0-18:1-PC, belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(18:0/18:1(9Z)) is considered to be a glycerophosphocholine lipid molecule. PC(18:0/18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(18:0/18:1(9Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(18:0/18:1(9Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(18:0/18:1(9Z)) exists in all eukaryotes, ranging from yeast to humans. S-Adenosylhomocysteine and PC(18:0/18:1(9Z)) can be biosynthesized from pe-nme2(18:0/18:1(9Z)) and S-adenosylmethionine; which is catalyzed by the enzyme phosphatidyl-N-methylethanolamine N-methyltransferase.	http://www.hmdb.ca/metabolites/HMDB0008038

PC(18:0/18:1(9Z)) ; HMDB08038	PC(18:0/18:1(9Z)), also known as sopc or 18:0-18:1-PC, belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(18:0/18:1(9Z)) is considered to be a glycerophosphocholine lipid molecule. PC(18:0/18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(18:0/18:1(9Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(18:0/18:1(9Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(18:0/18:1(9Z)) exists in all eukaryotes, ranging from yeast to humans. S-Adenosylhomocysteine and PC(18:0/18:1(9Z)) can be biosynthesized from pe-nme2(18:0/18:1(9Z)) and S-adenosylmethionine; which is catalyzed by the enzyme phosphatidyl-N-methylethanolamine N-methyltransferase.	http://www.hmdb.ca/metabolites/HMDB0008038

PC(18:0/18:2(9Z,12Z)) ; HMDB0008039	PC(18:0/18:2(9Z,12Z)), also known as PC(18:0/18:2) or 18:0-18:2-PC, belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(18:0/18:2(9Z,12Z)) is considered to be a glycerophosphocholine lipid molecule. PC(18:0/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(18:0/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(18:0/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(18:0/18:2(9Z,12Z)) participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and PC(18:0/18:2(9Z,12Z)) can be biosynthesized from S-adenosylmethionine and pe-nme2(18:0/18:2(9Z,12Z)); which is catalyzed by the enzyme phosphatidylethanolamine N-methyltransferase. Furthermore, Cytidine monophosphate and PC(18:0/18:2(9Z,12Z)) can be biosynthesized from CDP-choline and DG(18:0/18:2(9Z,12Z)/0:0); which is catalyzed by the enzyme choline/ethanolaminephosphotransferase. Finally, PC(18:0/18:2(9Z,12Z)) and L-serine can be converted into choline and PS(18:0/18:2(9Z,12Z)); which is catalyzed by the enzyme phosphatidylserine synthase. In humans, PC(18:0/18:2(9Z,12Z)) is involved in phosphatidylethanolamine biosynthesis pe(18:0/18:2(9Z,12Z)) pathway and phosphatidylcholine biosynthesis PC(18:0/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0008039

PC(18:0/18:2(9Z,12Z)) ; HMDB08039	PC(18:0/18:2(9Z,12Z)), also known as PC(18:0/18:2) or 18:0-18:2-PC, belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(18:0/18:2(9Z,12Z)) is considered to be a glycerophosphocholine lipid molecule. PC(18:0/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(18:0/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(18:0/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(18:0/18:2(9Z,12Z)) participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and PC(18:0/18:2(9Z,12Z)) can be biosynthesized from S-adenosylmethionine and pe-nme2(18:0/18:2(9Z,12Z)); which is catalyzed by the enzyme phosphatidylethanolamine N-methyltransferase. Furthermore, Cytidine monophosphate and PC(18:0/18:2(9Z,12Z)) can be biosynthesized from CDP-choline and DG(18:0/18:2(9Z,12Z)/0:0); which is catalyzed by the enzyme choline/ethanolaminephosphotransferase. Finally, PC(18:0/18:2(9Z,12Z)) and L-serine can be converted into choline and PS(18:0/18:2(9Z,12Z)); which is catalyzed by the enzyme phosphatidylserine synthase. In humans, PC(18:0/18:2(9Z,12Z)) is involved in phosphatidylethanolamine biosynthesis pe(18:0/18:2(9Z,12Z)) pathway and phosphatidylcholine biosynthesis PC(18:0/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0008039

PC(18:0/20:3(8Z,11Z,14Z)) ; HMDB0008047	PC(18:0/20:3(8Z,11Z,14Z)), also known as gpcho(18:0/20:3) or phosphatidylcholine(38:3), belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(18:0/20:3(8Z,11Z,14Z)) is considered to be a glycerophosphocholine lipid molecule. PC(18:0/20:3(8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(18:0/20:3(8Z,11Z,14Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(18:0/20:3(8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(18:0/20:3(8Z,11Z,14Z)) participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and PC(18:0/20:3(8Z,11Z,14Z)) can be biosynthesized from S-adenosylmethionine and pe-nme2(18:0/20:3(8Z,11Z,14Z)) through the action of the enzyme phosphatidylethanolamine N-methyltransferase. Furthermore, Cytidine monophosphate and PC(18:0/20:3(8Z,11Z,14Z)) can be biosynthesized from CDP-choline and DG(18:0/20:3(8Z,11Z,14Z)/0:0); which is mediated by the enzyme choline/ethanolaminephosphotransferase. Finally, PC(18:0/20:3(8Z,11Z,14Z)) and L-serine can be converted into choline and PS(18:0/20:3(8Z,11Z,14Z)); which is catalyzed by the enzyme phosphatidylserine synthase. In humans, PC(18:0/20:3(8Z,11Z,14Z)) is involved in phosphatidylethanolamine biosynthesis pe(18:0/20:3(8Z,11Z,14Z)) pathway and phosphatidylcholine biosynthesis PC(18:0/20:3(8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0008047

PC(18:0/20:3(8Z,11Z,14Z)) ; HMDB08047	PC(18:0/20:3(8Z,11Z,14Z)), also known as gpcho(18:0/20:3) or phosphatidylcholine(38:3), belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(18:0/20:3(8Z,11Z,14Z)) is considered to be a glycerophosphocholine lipid molecule. PC(18:0/20:3(8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(18:0/20:3(8Z,11Z,14Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(18:0/20:3(8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(18:0/20:3(8Z,11Z,14Z)) participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and PC(18:0/20:3(8Z,11Z,14Z)) can be biosynthesized from S-adenosylmethionine and pe-nme2(18:0/20:3(8Z,11Z,14Z)) through the action of the enzyme phosphatidylethanolamine N-methyltransferase. Furthermore, Cytidine monophosphate and PC(18:0/20:3(8Z,11Z,14Z)) can be biosynthesized from CDP-choline and DG(18:0/20:3(8Z,11Z,14Z)/0:0); which is mediated by the enzyme choline/ethanolaminephosphotransferase. Finally, PC(18:0/20:3(8Z,11Z,14Z)) and L-serine can be converted into choline and PS(18:0/20:3(8Z,11Z,14Z)); which is catalyzed by the enzyme phosphatidylserine synthase. In humans, PC(18:0/20:3(8Z,11Z,14Z)) is involved in phosphatidylethanolamine biosynthesis pe(18:0/20:3(8Z,11Z,14Z)) pathway and phosphatidylcholine biosynthesis PC(18:0/20:3(8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0008047

PC(18:0/20:4(5Z,8Z,11Z,14Z)) ; HMDB0008048	PC(18:0/20:4(5Z,8Z,11Z,14Z)), also known as phosphatidylcholine(18:0/20:4) or PC(18:0/20:4), belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(18:0/20:4(5Z,8Z,11Z,14Z)) is considered to be a glycerophosphocholine lipid molecule. PC(18:0/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(18:0/20:4(5Z,8Z,11Z,14Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(18:0/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(18:0/20:4(5Z,8Z,11Z,14Z)) participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and PC(18:0/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from S-adenosylmethionine and pe-nme2(18:0/20:4(5Z,8Z,11Z,14Z)) through the action of the enzyme phosphatidylethanolamine N-methyltransferase. Furthermore, Cytidine monophosphate and PC(18:0/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from CDP-choline and DG(18:0/20:4(5Z,8Z,11Z,14Z)/0:0); which is mediated by the enzyme choline/ethanolaminephosphotransferase. Finally, PC(18:0/20:4(5Z,8Z,11Z,14Z)) and L-serine can be converted into choline and PS(18:0/20:4(5Z,8Z,11Z,14Z)) through the action of the enzyme phosphatidylserine synthase. In humans, PC(18:0/20:4(5Z,8Z,11Z,14Z)) is involved in phosphatidylcholine biosynthesis PC(18:0/20:4(5Z,8Z,11Z,14Z)) pathway and phosphatidylethanolamine biosynthesis	http://www.hmdb.ca/metabolites/HMDB0008048

	pe(18:0/20:4(5Z,8Z,11Z,14Z)) pathway.	

PC(18:0/20:4(5Z,8Z,11Z,14Z)) ; HMDB08048	PC(18:0/20:4(5Z,8Z,11Z,14Z)), also known as phosphatidylcholine(18:0/20:4) or PC(18:0/20:4), belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(18:0/20:4(5Z,8Z,11Z,14Z)) is considered to be a glycerophosphocholine lipid molecule. PC(18:0/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(18:0/20:4(5Z,8Z,11Z,14Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(18:0/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(18:0/20:4(5Z,8Z,11Z,14Z)) participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and PC(18:0/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from S-adenosylmethionine and pe-nme2(18:0/20:4(5Z,8Z,11Z,14Z)) through the action of the enzyme phosphatidylethanolamine N-methyltransferase. Furthermore, Cytidine monophosphate and PC(18:0/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from CDP-choline and DG(18:0/20:4(5Z,8Z,11Z,14Z)/0:0); which is mediated by the enzyme choline/ethanolaminephosphotransferase. Finally, PC(18:0/20:4(5Z,8Z,11Z,14Z)) and L-serine can be converted into choline and PS(18:0/20:4(5Z,8Z,11Z,14Z)) through the action of the enzyme phosphatidylserine synthase. In humans, PC(18:0/20:4(5Z,8Z,11Z,14Z)) is involved in phosphatidylcholine biosynthesis PC(18:0/20:4(5Z,8Z,11Z,14Z)) pathway and phosphatidylethanolamine biosynthesis	http://www.hmdb.ca/metabolites/HMDB0008048

	pe(18:0/20:4(5Z,8Z,11Z,14Z)) pathway.	

PC(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) ; HMDB0008057	PC(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)), also known as phosphatidylcholine(18:0/22:6) or PC(18:0/22:6), belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is considered to be a glycerophosphocholine lipid molecule. PC(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, PC(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and PC(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) can be biosynthesized from S-adenosylmethionine and pe-nme2(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) through its interaction with the enzyme phosphatidylethanolamine N-methyltransferase. Furthermore, Cytidine monophosphate and PC(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) can be biosynthesized from CDP-choline and DG(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0) through the action of the enzyme choline/ethanolaminephosphotransferase. Finally, PC(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) and L-serine can be converted into choline and PS(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) through the action of the enzyme phosphatidylserine synthase. In humans, PC(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is involved in phosphatidylcholine biosynthesis PC(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) pathway and phosphatidylethanolamine	http://www.hmdb.ca/metabolites/HMDB0008057

	biosynthesis pe(18:0/22:6(4Z,7Z,10Z,13Z,16Z, 19Z)) pathway.	

PC(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) ; HMDB08057	PC(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)), also known as phosphatidylcholine(18:0/22:6) or PC(18:0/22:6), belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is considered to be a glycerophosphocholine lipid molecule. PC(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, PC(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and PC(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) can be biosynthesized from S-adenosylmethionine and pe-nme2(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) through its interaction with the enzyme phosphatidylethanolamine N-methyltransferase. Furthermore, Cytidine monophosphate and PC(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) can be biosynthesized from CDP-choline and DG(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0) through the action of the enzyme choline/ethanolaminephosphotransferase. Finally, PC(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) and L-serine can be converted into choline and PS(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) through the action of the enzyme phosphatidylserine synthase. In humans, PC(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is involved in phosphatidylcholine biosynthesis PC(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) pathway and phosphatidylethanolamine	http://www.hmdb.ca/metabolites/HMDB0008057

	biosynthesis pe(18:0/22:6(4Z,7Z,10Z,13Z,16Z, 19Z)) pathway.	

PC(18:1(9Z)/18:2(9Z,12Z)) ; HMDB0008105	PC(18:1(9Z)/18:2(9Z,12Z)), also known as PC(18:1/18:2) or PC(18:1omega9/18:2omega6), belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(18:1(9Z)/18:2(9Z,12Z)) is considered to be a glycerophosphocholine lipid molecule. PC(18:1(9Z)/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(18:1(9Z)/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(18:1(9Z)/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(18:1(9Z)/18:2(9Z,12Z)) participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and PC(18:1(9Z)/18:2(9Z,12Z)) can be biosynthesized from S-adenosylmethionine and pe-nme2(18:1(9Z)/18:2(9Z,12Z)); which is mediated by the enzyme phosphatidylethanolamine N-methyltransferase. Furthermore, Cytidine monophosphate and PC(18:1(9Z)/18:2(9Z,12Z)) can be biosynthesized from CDP-choline and DG(18:1(9Z)/18:2(9Z,12Z)/0:0); which is mediated by the enzyme choline/ethanolaminephosphotransferase. Finally, PC(18:1(9Z)/18:2(9Z,12Z)) and L-serine can be converted into choline and PS(18:1(9Z)/18:2(9Z,12Z)) through its interaction with the enzyme phosphatidylserine synthase. In humans, PC(18:1(9Z)/18:2(9Z,12Z)) is involved in phosphatidylethanolamine biosynthesis pe(18:1(9Z)/18:2(9Z,12Z)) pathway and phosphatidylcholine biosynthesis PC(18:1(9Z)/18:2(9Z,12Z)) pathway. Outside of the human	http://www.hmdb.ca/metabolites/HMDB0008105

	body, PC(18:1(9Z)/18:2(9Z,12Z)) can be found in a number of food items such as flaxseed, nance, orange bell pepper, and wild carrot. This makes PC(18:1(9Z)/18:2(9Z,12Z)) a potential biomarker for the consumption of these food products.	

PC(18:1(9Z)/18:2(9Z,12Z)) ; HMDB08105	PC(18:1(9Z)/18:2(9Z,12Z)), also known as PC(18:1/18:2) or PC(18:1omega9/18:2omega6), belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(18:1(9Z)/18:2(9Z,12Z)) is considered to be a glycerophosphocholine lipid molecule. PC(18:1(9Z)/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(18:1(9Z)/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(18:1(9Z)/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(18:1(9Z)/18:2(9Z,12Z)) participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and PC(18:1(9Z)/18:2(9Z,12Z)) can be biosynthesized from S-adenosylmethionine and pe-nme2(18:1(9Z)/18:2(9Z,12Z)); which is mediated by the enzyme phosphatidylethanolamine N-methyltransferase. Furthermore, Cytidine monophosphate and PC(18:1(9Z)/18:2(9Z,12Z)) can be biosynthesized from CDP-choline and DG(18:1(9Z)/18:2(9Z,12Z)/0:0); which is mediated by the enzyme choline/ethanolaminephosphotransferase. Finally, PC(18:1(9Z)/18:2(9Z,12Z)) and L-serine can be converted into choline and PS(18:1(9Z)/18:2(9Z,12Z)) through its interaction with the enzyme phosphatidylserine synthase. In humans, PC(18:1(9Z)/18:2(9Z,12Z)) is involved in phosphatidylethanolamine biosynthesis pe(18:1(9Z)/18:2(9Z,12Z)) pathway and phosphatidylcholine biosynthesis PC(18:1(9Z)/18:2(9Z,12Z)) pathway. Outside of the human	http://www.hmdb.ca/metabolites/HMDB0008105

	body, PC(18:1(9Z)/18:2(9Z,12Z)) can be found in a number of food items such as flaxseed, nance, orange bell pepper, and wild carrot. This makes PC(18:1(9Z)/18:2(9Z,12Z)) a potential biomarker for the consumption of these food products.	

PC(18:2(9Z,12Z)/18:2(9Z,12Z)) ; HMDB0008138	PC(18:2(9Z,12Z)/18:2(9Z,12Z)), also known as dilinoleoylphosphatidylcholine or L-dilinoleoyllecithin, belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(18:2(9Z,12Z)/18:2(9Z,12Z)) is considered to be a glycerophosphocholine lipid molecule. PC(18:2(9Z,12Z)/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(18:2(9Z,12Z)/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(18:2(9Z,12Z)/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(18:2(9Z,12Z)/18:2(9Z,12Z)) participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and PC(18:2(9Z,12Z)/18:2(9Z,12Z)) can be biosynthesized from S-adenosylmethionine and pe-nme2(18:2(9Z,12Z)/18:2(9Z,12Z)) ; which is mediated by the enzyme phosphatidylethanolamine N-methyltransferase. Furthermore, Cytidine monophosphate and PC(18:2(9Z,12Z)/18:2(9Z,12Z)) can be biosynthesized from CDP-choline and DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0); which is catalyzed by the enzyme choline/ethanolaminephosphotransferase. Finally, PC(18:2(9Z,12Z)/18:2(9Z,12Z)) and L-serine can be converted into choline and PS(18:2(9Z,12Z)/18:2(9Z,12Z)) through its interaction with the enzyme phosphatidylserine synthase. In humans, PC(18:2(9Z,12Z)/18:2(9Z,12Z)) is involved in phosphatidylcholine biosynthesis PC(18:2(9Z,12Z)/18:2(9Z,12Z)) pathway and phosphatidylethanolamine	http://www.hmdb.ca/metabolites/HMDB0008138

	biosynthesis pe(18:2(9Z,12Z)/18:2(9Z,12Z)) pathway. Outside of the human body, PC(18:2(9Z,12Z)/18:2(9Z,12Z)) can be found in a number of food items such as small-leaf linden, carob, italian oregano, and sago palm. This makes PC(18:2(9Z,12Z)/18:2(9Z,12Z)) a potential biomarker for the consumption of these food products.	

PC(18:2(9Z,12Z)/18:2(9Z,12Z)) ; HMDB08138	PC(18:2(9Z,12Z)/18:2(9Z,12Z)), also known as dilinoleoylphosphatidylcholine or L-dilinoleoyllecithin, belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(18:2(9Z,12Z)/18:2(9Z,12Z)) is considered to be a glycerophosphocholine lipid molecule. PC(18:2(9Z,12Z)/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(18:2(9Z,12Z)/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(18:2(9Z,12Z)/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(18:2(9Z,12Z)/18:2(9Z,12Z)) participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and PC(18:2(9Z,12Z)/18:2(9Z,12Z)) can be biosynthesized from S-adenosylmethionine and pe-nme2(18:2(9Z,12Z)/18:2(9Z,12Z)) ; which is mediated by the enzyme phosphatidylethanolamine N-methyltransferase. Furthermore, Cytidine monophosphate and PC(18:2(9Z,12Z)/18:2(9Z,12Z)) can be biosynthesized from CDP-choline and DG(18:2(9Z,12Z)/18:2(9Z,12Z)/0:0); which is catalyzed by the enzyme choline/ethanolaminephosphotransferase. Finally, PC(18:2(9Z,12Z)/18:2(9Z,12Z)) and L-serine can be converted into choline and PS(18:2(9Z,12Z)/18:2(9Z,12Z)) through its interaction with the enzyme phosphatidylserine synthase. In humans, PC(18:2(9Z,12Z)/18:2(9Z,12Z)) is involved in phosphatidylcholine biosynthesis PC(18:2(9Z,12Z)/18:2(9Z,12Z)) pathway and phosphatidylethanolamine	http://www.hmdb.ca/metabolites/HMDB0008138

	biosynthesis pe(18:2(9Z,12Z)/18:2(9Z,12Z)) pathway. Outside of the human body, PC(18:2(9Z,12Z)/18:2(9Z,12Z)) can be found in a number of food items such as small-leaf linden, carob, italian oregano, and sago palm. This makes PC(18:2(9Z,12Z)/18:2(9Z,12Z)) a potential biomarker for the consumption of these food products.	

PC(20:0/18:2(9Z,12Z)) ; HMDB0008270	PC(20:0/18:2(9Z,12Z)), also known as gpcho(20:0/18:2) or gpcho(38:2), belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(20:0/18:2(9Z,12Z)) is considered to be a glycerophosphocholine lipid molecule. PC(20:0/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(20:0/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(20:0/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(20:0/18:2(9Z,12Z)) participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and PC(20:0/18:2(9Z,12Z)) can be biosynthesized from S-adenosylmethionine and pe-nme2(20:0/18:2(9Z,12Z)) through its interaction with the enzyme phosphatidylethanolamine N-methyltransferase. Furthermore, Cytidine monophosphate and PC(20:0/18:2(9Z,12Z)) can be biosynthesized from CDP-choline and DG(20:0/18:2(9Z,12Z)/0:0) through the action of the enzyme choline/ethanolaminephosphotransferase. Finally, PC(20:0/18:2(9Z,12Z)) and L-serine can be converted into choline and PS(20:0/18:2(9Z,12Z)) through the action of the enzyme phosphatidylserine synthase. In humans, PC(20:0/18:2(9Z,12Z)) is involved in phosphatidylcholine biosynthesis PC(20:0/18:2(9Z,12Z)) pathway and phosphatidylethanolamine biosynthesis pe(20:0/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0008270

PC(20:0/18:2(9Z,12Z)) ; HMDB08270	PC(20:0/18:2(9Z,12Z)), also known as gpcho(20:0/18:2) or gpcho(38:2), belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(20:0/18:2(9Z,12Z)) is considered to be a glycerophosphocholine lipid molecule. PC(20:0/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(20:0/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(20:0/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(20:0/18:2(9Z,12Z)) participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and PC(20:0/18:2(9Z,12Z)) can be biosynthesized from S-adenosylmethionine and pe-nme2(20:0/18:2(9Z,12Z)) through its interaction with the enzyme phosphatidylethanolamine N-methyltransferase. Furthermore, Cytidine monophosphate and PC(20:0/18:2(9Z,12Z)) can be biosynthesized from CDP-choline and DG(20:0/18:2(9Z,12Z)/0:0) through the action of the enzyme choline/ethanolaminephosphotransferase. Finally, PC(20:0/18:2(9Z,12Z)) and L-serine can be converted into choline and PS(20:0/18:2(9Z,12Z)) through the action of the enzyme phosphatidylserine synthase. In humans, PC(20:0/18:2(9Z,12Z)) is involved in phosphatidylcholine biosynthesis PC(20:0/18:2(9Z,12Z)) pathway and phosphatidylethanolamine biosynthesis pe(20:0/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0008270

PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:3(6Z,9Z,12Z)) ; HMDB0008731	PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:3(6Z,9Z,12Z)), also known as gpcho(22:6/18:3) or gpcho(40:9), belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:3(6Z,9Z,12Z)) is considered to be a glycerophosphocholine lipid molecule. PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:3(6Z,9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:3(6Z,9Z,12Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:3(6Z,9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:3(6Z,9Z,12Z)) participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:3(6Z,9Z,12Z)) can be biosynthesized from S-adenosylmethionine and pe-nme2(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:3(6Z,9Z,12Z)) through the action of the enzyme phosphatidylethanolamine N-methyltransferase. Furthermore, Cytidine monophosphate and PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:3(6Z,9Z,12Z)) can be biosynthesized from CDP-choline and DG(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:3(6Z,9Z,12Z)/0:0) through its interaction with the enzyme choline/ethanolaminephosphotransferase. Finally, PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:3(6Z,9Z,12Z)) and L-serine can be converted into choline and PS(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:3(6Z,9Z,12Z)); which is catalyzed by the enzyme phosphatidylserine synthase. In humans, PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:3(6Z,9Z,12Z)) is involved in	http://www.hmdb.ca/metabolites/HMDB0008731

	phosphatidylcholine biosynthesis PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z) /18:3(6Z,9Z,12Z)) pathway and phosphatidylethanolamine biosynthesis pe(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/ 18:3(6Z,9Z,12Z)) pathway.	

PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:3(6Z,9Z,12Z)) ; HMDB08731	PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:3(6Z,9Z,12Z)), also known as gpcho(22:6/18:3) or gpcho(40:9), belongs to the class of organic compounds known as phosphatidylcholines. These are glycerophosphocholines in which the two free -OH are attached to one fatty acid each through an ester linkage. Thus, PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:3(6Z,9Z,12Z)) is considered to be a glycerophosphocholine lipid molecule. PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:3(6Z,9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:3(6Z,9Z,12Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:3(6Z,9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:3(6Z,9Z,12Z)) participates in a number of enzymatic reactions. In particular, S-Adenosylhomocysteine and PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:3(6Z,9Z,12Z)) can be biosynthesized from S-adenosylmethionine and pe-nme2(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:3(6Z,9Z,12Z)) through the action of the enzyme phosphatidylethanolamine N-methyltransferase. Furthermore, Cytidine monophosphate and PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:3(6Z,9Z,12Z)) can be biosynthesized from CDP-choline and DG(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:3(6Z,9Z,12Z)/0:0) through its interaction with the enzyme choline/ethanolaminephosphotransferase. Finally, PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:3(6Z,9Z,12Z)) and L-serine can be converted into choline and PS(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:3(6Z,9Z,12Z)); which is catalyzed by the enzyme phosphatidylserine synthase. In humans, PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/18:3(6Z,9Z,12Z)) is involved in	http://www.hmdb.ca/metabolites/HMDB0008731

	phosphatidylcholine biosynthesis PC(22:6(4Z,7Z,10Z,13Z,16Z,19Z) /18:3(6Z,9Z,12Z)) pathway and phosphatidylethanolamine biosynthesis pe(22:6(4Z,7Z,10Z,13Z,16Z,19Z)/ 18:3(6Z,9Z,12Z)) pathway.	
PC(P-16:0/18:0) ; HMDB0011208	PC(p-16:0/18:0), also known as gpcho(16:0/18:0) or gpcho(34:0), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acyl-glycerophosphocholines. These are glycerophosphocholines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. Thus, PC(p-16:0/18:0) is considered to be a glycerophosphocholine lipid molecule. PC(p-16:0/18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(p-16:0/18:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(p-16:0/18:0) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011208
PC(P-16:0/18:0) ; HMDB11208	PC(p-16:0/18:0), also known as gpcho(16:0/18:0) or gpcho(34:0), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acyl-glycerophosphocholines. These are glycerophosphocholines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. Thus, PC(p-16:0/18:0) is considered to be a glycerophosphocholine lipid molecule. PC(p-16:0/18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(p-16:0/18:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(p-16:0/18:0) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011208

PC(P-16:0/18:1(9Z)) ; HMDB0011210	PC(p-16:0/18:1(9Z)), also known as gpcho(16:0/18:1) or gpcho(34:1), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acyl-glycerophosphocholines. These are glycerophosphocholines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. Thus, PC(p-16:0/18:1(9Z)) is considered to be a glycerophosphocholine lipid molecule. PC(p-16:0/18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(p-16:0/18:1(9Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(p-16:0/18:1(9Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011210
PC(P-16:0/18:1(9Z)) ; HMDB11210	PC(p-16:0/18:1(9Z)), also known as gpcho(16:0/18:1) or gpcho(34:1), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acyl-glycerophosphocholines. These are glycerophosphocholines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. Thus, PC(p-16:0/18:1(9Z)) is considered to be a glycerophosphocholine lipid molecule. PC(p-16:0/18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(p-16:0/18:1(9Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(p-16:0/18:1(9Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011210

PC(P-16:0/18:2(9Z,12Z)) ; HMDB0011211	PC(p-16:0/18:2(9Z,12Z)), also known as PC(p-16:0/18:2) or gpcho(34:2), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acyl-glycerophosphocholines. These are glycerophosphocholines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. Thus, PC(p-16:0/18:2(9Z,12Z)) is considered to be a glycerophosphocholine lipid molecule. PC(p-16:0/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(p-16:0/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(p-16:0/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(p-16:0/18:2(9Z,12Z)) can be biosynthesized from linoleic acid.	http://www.hmdb.ca/metabolites/HMDB0011211

PC(P-16:0/18:2(9Z,12Z)) ; HMDB11211	PC(p-16:0/18:2(9Z,12Z)), also known as PC(p-16:0/18:2) or gpcho(34:2), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acyl-glycerophosphocholines. These are glycerophosphocholines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. Thus, PC(p-16:0/18:2(9Z,12Z)) is considered to be a glycerophosphocholine lipid molecule. PC(p-16:0/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(p-16:0/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(p-16:0/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(p-16:0/18:2(9Z,12Z)) can be biosynthesized from linoleic acid.	http://www.hmdb.ca/metabolites/HMDB0011211

PC(P-16:0/20:4(5Z,8Z,11Z,14Z)) ; HMDB0011220	PC(p-16:0/20:4(5Z,8Z,11Z,14Z)), also known as GPC(p-16:0/20:4) or PC(O-16:1(1Z)/20:4 (5Z,8Z,11Z,14Z)), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acyl-glycerophosphocholines. These are glycerophosphocholines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. Thus, PC(p-16:0/20:4(5Z,8Z,11Z,14Z)) is considered to be a glycerophosphocholine lipid molecule. PC(p-16:0/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(p-16:0/20:4(5Z,8Z,11Z,14Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(p-16:0/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(p-16:0/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from arachidonic acid.	http://www.hmdb.ca/metabolites/HMDB0011220

PC(P-16:0/20:4(5Z,8Z,11Z,14Z)) ; HMDB11220	PC(p-16:0/20:4(5Z,8Z,11Z,14Z)), also known as GPC(p-16:0/20:4) or PC(O-16:1(1Z)/20:4 (5Z,8Z,11Z,14Z)), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acyl-glycerophosphocholines. These are glycerophosphocholines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. Thus, PC(p-16:0/20:4(5Z,8Z,11Z,14Z)) is considered to be a glycerophosphocholine lipid molecule. PC(p-16:0/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(p-16:0/20:4(5Z,8Z,11Z,14Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(p-16:0/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(p-16:0/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from arachidonic acid.	http://www.hmdb.ca/metabolites/HMDB0011220
PC(P-16:0/20:4(8Z,11Z,14Z,17Z)) ; HMDB0011221	PC(p-16:0/20:4(8Z,11Z,14Z,17Z)), also known as glycerophosphocholine or PC(20:4), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acyl-glycerophosphocholines. These are glycerophosphocholines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. PC(p-16:0/20:4(8Z,11Z,14Z,17Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(p-16:0/20:4(8Z,11Z,14Z,17Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(p-16:0/20:4(8Z,11Z,14Z,17Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011221

PC(P-16:0/20:4(8Z,11Z,14Z,17Z)) ; HMDB11221	PC(p-16:0/20:4(8Z,11Z,14Z,17Z)), also known as glycerophosphocholine or PC(20:4), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acyl-glycerophosphocholines. These are glycerophosphocholines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. PC(p-16:0/20:4(8Z,11Z,14Z,17Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(p-16:0/20:4(8Z,11Z,14Z,17Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(p-16:0/20:4(8Z,11Z,14Z,17Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011221
PC(P-16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) ; HMDB0011229	PC(p-16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)), also known as phosphatidylcholine(16:0/22:6) or gpcho(16:0/22:6), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acyl-glycerophosphocholines. These are glycerophosphocholines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. PC(p-16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(p-16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(p-16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011229

PC(P-16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) ; HMDB11229	PC(p-16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)), also known as phosphatidylcholine(16:0/22:6) or gpcho(16:0/22:6), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acyl-glycerophosphocholines. These are glycerophosphocholines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. PC(p-16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(p-16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(p-16:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011229
PC(P-18:0/18:0) ; HMDB0011241	PC(p-18:0/18:0), also known as gpcho(18:0/18:0) or gpcho(36:0), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acyl-glycerophosphocholines. These are glycerophosphocholines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. Thus, PC(p-18:0/18:0) is considered to be a glycerophosphocholine lipid molecule. PC(p-18:0/18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(p-18:0/18:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(p-18:0/18:0) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011241

PC(P-18:0/18:0) ; HMDB11241	PC(p-18:0/18:0), also known as gpcho(18:0/18:0) or gpcho(36:0), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acyl-glycerophosphocholines. These are glycerophosphocholines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. Thus, PC(p-18:0/18:0) is considered to be a glycerophosphocholine lipid molecule. PC(p-18:0/18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(p-18:0/18:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PC(p-18:0/18:0) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011241
PC(P-18:0/18:1(9Z)) ; HMDB0011243	PC(p-18:0/18:1(9Z)), also known as GPC(p-18:0/18:1) or gpcho(36:1), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acyl-glycerophosphocholines. These are glycerophosphocholines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. Thus, PC(p-18:0/18:1(9Z)) is considered to be a glycerophosphocholine lipid molecule. PC(p-18:0/18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(p-18:0/18:1(9Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(p-18:0/18:1(9Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(p-18:0/18:1(9Z)) can be biosynthesized from oleic acid.	http://www.hmdb.ca/metabolites/HMDB0011243

PC(P-18:0/18:1(9Z)) ; HMDB11243	PC(p-18:0/18:1(9Z)), also known as GPC(p-18:0/18:1) or gpcho(36:1), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acyl-glycerophosphocholines. These are glycerophosphocholines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. Thus, PC(p-18:0/18:1(9Z)) is considered to be a glycerophosphocholine lipid molecule. PC(p-18:0/18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(p-18:0/18:1(9Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(p-18:0/18:1(9Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(p-18:0/18:1(9Z)) can be biosynthesized from oleic acid.	http://www.hmdb.ca/metabolites/HMDB0011243
PC(P-18:0/18:2(9Z,12Z)) ; HMDB0011244	PC(p-18:0/18:2(9Z,12Z)), also known as PC(p-18:0/18:2) or gpcho(36:2), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acyl-glycerophosphocholines. These are glycerophosphocholines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. Thus, PC(p-18:0/18:2(9Z,12Z)) is considered to be a glycerophosphocholine lipid molecule. PC(p-18:0/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(p-18:0/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(p-18:0/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(p-18:0/18:2(9Z,12Z)) can be biosynthesized from linoleic acid.	http://www.hmdb.ca/metabolites/HMDB0011244

PC(P-18:0/18:2(9Z,12Z)) ; HMDB11244	PC(p-18:0/18:2(9Z,12Z)), also known as PC(p-18:0/18:2) or gpcho(36:2), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acyl-glycerophosphocholines. These are glycerophosphocholines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. Thus, PC(p-18:0/18:2(9Z,12Z)) is considered to be a glycerophosphocholine lipid molecule. PC(p-18:0/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(p-18:0/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(p-18:0/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PC(p-18:0/18:2(9Z,12Z)) can be biosynthesized from linoleic acid.	http://www.hmdb.ca/metabolites/HMDB0011244

PC(P-18:0/20:3(8Z,11Z,14Z)) ; HMDB0011252	PC(p-18:0/20:3(8Z,11Z,14Z)), also known as phosphatidylcholine(18:0/20:3) or gpcho(18:0/20:3), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acyl-glycerophosphocholines. These are glycerophosphocholines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. Thus, PC(p-18:0/20:3(8Z,11Z,14Z)) is considered to be a glycerophosphocholine lipid molecule. PC(p-18:0/20:3(8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(p-18:0/20:3(8Z,11Z,14Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(p-18:0/20:3(8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011252

PC(P-18:0/20:3(8Z,11Z,14Z)) ; HMDB11252	PC(p-18:0/20:3(8Z,11Z,14Z)), also known as phosphatidylcholine(18:0/20:3) or gpcho(18:0/20:3), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acyl-glycerophosphocholines. These are glycerophosphocholines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. Thus, PC(p-18:0/20:3(8Z,11Z,14Z)) is considered to be a glycerophosphocholine lipid molecule. PC(p-18:0/20:3(8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(p-18:0/20:3(8Z,11Z,14Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(p-18:0/20:3(8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011252
PC(P-18:1(9Z)/18:2(9Z,12Z)) ; HMDB0011310	PC(p-18:1(9Z)/18:2(9Z,12Z)), also known as gpcho(18:1/18:2) or gpcho(36:3), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acyl-glycerophosphocholines. These are glycerophosphocholines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. PC(p-18:1(9Z)/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(p-18:1(9Z)/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(p-18:1(9Z)/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011310

PC(P-18:1(9Z)/18:2(9Z,12Z)) ; HMDB11310	PC(p-18:1(9Z)/18:2(9Z,12Z)), also known as gpcho(18:1/18:2) or gpcho(36:3), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acyl-glycerophosphocholines. These are glycerophosphocholines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. PC(p-18:1(9Z)/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(p-18:1(9Z)/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(p-18:1(9Z)/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011310
PC(P-18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB0011319	PC(p-18:1(9Z)/20:4(5Z,8Z,11Z,14Z)), also known as gpcho(18:1/20:4) or gpcho(38:5), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acyl-glycerophosphocholines. These are glycerophosphocholines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. PC(p-18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(p-18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(p-18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011319

PC(P-18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB11319	PC(p-18:1(9Z)/20:4(5Z,8Z,11Z,14Z)), also known as gpcho(18:1/20:4) or gpcho(38:5), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acyl-glycerophosphocholines. These are glycerophosphocholines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. PC(p-18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PC(p-18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) has been found throughout all human tissues, and has also been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, PC(p-18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011319

PE(16:0/18:0) ; HMDB0008925	PE(16:0/18:0), also known as PE(34:0), belongs to the class of organic compounds known as phosphatidylethanolamines. These are glycerophosphoetahnolamines in which two fatty acids are bonded to the glycerol moiety through ester linkages. Thus, PE(16:0/18:0) is considered to be a glycerophosphoethanolamine lipid molecule. PE(16:0/18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(16:0/18:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(16:0/18:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(16:0/18:0) exists in all eukaryotes, ranging from yeast to humans. PE(16:0/18:0) participates in a number of enzymatic reactions. In particular, Cytidine monophosphate and PE(16:0/18:0) can be biosynthesized from CDP-ethanolamine and DG(16:0/18:0/0:0); which is mediated by the enzyme choline/ethanolaminephosphotransferase. Furthermore, PE(16:0/18:0) can be biosynthesized from PS(16:0/18:0) through its interaction with the enzyme phosphatidylserine decarboxylase. Furthermore, PE(16:0/18:0) can be biosynthesized from PS(16:0/18:0); which is catalyzed by the enzyme phosphatidylserine decarboxylase. Furthermore, Cytidine monophosphate and PE(16:0/18:0) can be biosynthesized from CDP-ethanolamine and DG(16:0/18:0/0:0); which is catalyzed by the enzyme choline/ethanolaminephosphotransferase. Finally, PE(16:0/18:0) and S-adenosylmethionine can be converted into pe-nme(16:0/18:0) and S-adenosylhomocysteine; which is mediated by the enzyme phosphatidylethanolamine N-methyltransferase. In humans, PE(16:0/18:0) is involved in phosphatidylethanolamine biosynthesis pe(16:0/18:0)	http://www.hmdb.ca/metabolites/HMDB0008925

	pathway and phosphatidylcholine biosynthesis PC(16:0/18:0) pathway.	

PE(16:0/18:0) ; HMDB08925	PE(16:0/18:0), also known as PE(34:0), belongs to the class of organic compounds known as phosphatidylethanolamines. These are glycerophosphoetahnolamines in which two fatty acids are bonded to the glycerol moiety through ester linkages. Thus, PE(16:0/18:0) is considered to be a glycerophosphoethanolamine lipid molecule. PE(16:0/18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(16:0/18:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(16:0/18:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(16:0/18:0) exists in all eukaryotes, ranging from yeast to humans. PE(16:0/18:0) participates in a number of enzymatic reactions. In particular, Cytidine monophosphate and PE(16:0/18:0) can be biosynthesized from CDP-ethanolamine and DG(16:0/18:0/0:0); which is mediated by the enzyme choline/ethanolaminephosphotransferase. Furthermore, PE(16:0/18:0) can be biosynthesized from PS(16:0/18:0) through its interaction with the enzyme phosphatidylserine decarboxylase. Furthermore, PE(16:0/18:0) can be biosynthesized from PS(16:0/18:0); which is catalyzed by the enzyme phosphatidylserine decarboxylase. Furthermore, Cytidine monophosphate and PE(16:0/18:0) can be biosynthesized from CDP-ethanolamine and DG(16:0/18:0/0:0); which is catalyzed by the enzyme choline/ethanolaminephosphotransferase. Finally, PE(16:0/18:0) and S-adenosylmethionine can be converted into pe-nme(16:0/18:0) and S-adenosylhomocysteine; which is mediated by the enzyme phosphatidylethanolamine N-methyltransferase. In humans, PE(16:0/18:0) is involved in phosphatidylethanolamine biosynthesis pe(16:0/18:0)	http://www.hmdb.ca/metabolites/HMDB0008925

	pathway and phosphatidylcholine biosynthesis PC(16:0/18:0) pathway.	

PE(16:0/18:2(9Z,12Z)) ; HMDB0008928	PE(16:0/18:2(9Z,12Z)), also known as gpe(16:0/18:2) or GPEtn(34:2), belongs to the class of organic compounds known as phosphatidylethanolamines. These are glycerophosphoetahnolamines in which two fatty acids are bonded to the glycerol moiety through ester linkages. Thus, PE(16:0/18:2(9Z,12Z)) is considered to be a glycerophosphoethanolamine lipid molecule. PE(16:0/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(16:0/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(16:0/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(16:0/18:2(9Z,12Z)) participates in a number of enzymatic reactions. In particular, Cytidine monophosphate and PE(16:0/18:2(9Z,12Z)) can be biosynthesized from CDP-ethanolamine and DG(16:0/18:2(9Z,12Z)/0:0); which is mediated by the enzyme choline/ethanolaminephosphotransferase. Furthermore, PE(16:0/18:2(9Z,12Z)) can be biosynthesized from PS(16:0/18:2(9Z,12Z)); which is mediated by the enzyme phosphatidylserine decarboxylase. Furthermore, PE(16:0/18:2(9Z,12Z)) can be biosynthesized from PS(16:0/18:2(9Z,12Z)); which is mediated by the enzyme phosphatidylserine decarboxylase. Finally, Cytidine monophosphate and PE(16:0/18:2(9Z,12Z)) can be biosynthesized from CDP-ethanolamine and DG(16:0/18:2(9Z,12Z)/0:0); which is mediated by the enzyme choline/ethanolaminephosphotransferase. In humans, PE(16:0/18:2(9Z,12Z)) is involved in phosphatidylethanolamine biosynthesis pe(16:0/18:2(9Z,12Z)) pathway and phosphatidylcholine biosynthesis PC(16:0/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0008928

PE(16:0/18:2(9Z,12Z)) ; HMDB08928	PE(16:0/18:2(9Z,12Z)), also known as gpe(16:0/18:2) or GPEtn(34:2), belongs to the class of organic compounds known as phosphatidylethanolamines. These are glycerophosphoetahnolamines in which two fatty acids are bonded to the glycerol moiety through ester linkages. Thus, PE(16:0/18:2(9Z,12Z)) is considered to be a glycerophosphoethanolamine lipid molecule. PE(16:0/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(16:0/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(16:0/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(16:0/18:2(9Z,12Z)) participates in a number of enzymatic reactions. In particular, Cytidine monophosphate and PE(16:0/18:2(9Z,12Z)) can be biosynthesized from CDP-ethanolamine and DG(16:0/18:2(9Z,12Z)/0:0); which is mediated by the enzyme choline/ethanolaminephosphotransferase. Furthermore, PE(16:0/18:2(9Z,12Z)) can be biosynthesized from PS(16:0/18:2(9Z,12Z)); which is mediated by the enzyme phosphatidylserine decarboxylase. Furthermore, PE(16:0/18:2(9Z,12Z)) can be biosynthesized from PS(16:0/18:2(9Z,12Z)); which is mediated by the enzyme phosphatidylserine decarboxylase. Finally, Cytidine monophosphate and PE(16:0/18:2(9Z,12Z)) can be biosynthesized from CDP-ethanolamine and DG(16:0/18:2(9Z,12Z)/0:0); which is mediated by the enzyme choline/ethanolaminephosphotransferase. In humans, PE(16:0/18:2(9Z,12Z)) is involved in phosphatidylethanolamine biosynthesis pe(16:0/18:2(9Z,12Z)) pathway and phosphatidylcholine biosynthesis PC(16:0/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0008928

PE(16:0/20:4(5Z,8Z,11Z,14Z)) ; HMDB0008937	PE(16:0/20:4(5Z,8Z,11Z,14Z)), also known as gpe(16:0/20:4) or 1-palmitoyl-2-arachidonoyl-gpe, belongs to the class of organic compounds known as phosphatidylethanolamines. These are glycerophosphoetahnolamines in which two fatty acids are bonded to the glycerol moiety through ester linkages. Thus, PE(16:0/20:4(5Z,8Z,11Z,14Z)) is considered to be a glycerophosphoethanolamine lipid molecule. PE(16:0/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(16:0/20:4(5Z,8Z,11Z,14Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(16:0/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(16:0/20:4(5Z,8Z,11Z,14Z)) participates in a number of enzymatic reactions. In particular, Cytidine monophosphate and PE(16:0/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from CDP-ethanolamine and DG(16:0/20:4(5Z,8Z,11Z,14Z)/0:0); which is mediated by the enzyme choline/ethanolaminephosphotransferase. Furthermore, PE(16:0/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from PS(16:0/20:4(5Z,8Z,11Z,14Z)) through its interaction with the enzyme phosphatidylserine decarboxylase. Furthermore, PE(16:0/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from PS(16:0/20:4(5Z,8Z,11Z,14Z)) through its interaction with the enzyme phosphatidylserine decarboxylase. Finally, Cytidine monophosphate and PE(16:0/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from CDP-ethanolamine and DG(16:0/20:4(5Z,8Z,11Z,14Z)/0:0) through the action of the enzyme choline/ethanolaminephosphotransferase. In humans, PE(16:0/20:4(5Z,8Z,11Z,14Z)) is involved in phosphatidylcholine biosynthesis	http://www.hmdb.ca/metabolites/HMDB0008937

	PC(16:0/20:4(5Z,8Z,11Z,14Z)) pathway and phosphatidylethanolamine biosynthesis pe(16:0/20:4(5Z,8Z,11Z,14Z)) pathway.	

PE(16:0/20:4(5Z,8Z,11Z,14Z)) ; HMDB08937	PE(16:0/20:4(5Z,8Z,11Z,14Z)), also known as gpe(16:0/20:4) or 1-palmitoyl-2-arachidonoyl-gpe, belongs to the class of organic compounds known as phosphatidylethanolamines. These are glycerophosphoetahnolamines in which two fatty acids are bonded to the glycerol moiety through ester linkages. Thus, PE(16:0/20:4(5Z,8Z,11Z,14Z)) is considered to be a glycerophosphoethanolamine lipid molecule. PE(16:0/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(16:0/20:4(5Z,8Z,11Z,14Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(16:0/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(16:0/20:4(5Z,8Z,11Z,14Z)) participates in a number of enzymatic reactions. In particular, Cytidine monophosphate and PE(16:0/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from CDP-ethanolamine and DG(16:0/20:4(5Z,8Z,11Z,14Z)/0:0); which is mediated by the enzyme choline/ethanolaminephosphotransferase. Furthermore, PE(16:0/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from PS(16:0/20:4(5Z,8Z,11Z,14Z)) through its interaction with the enzyme phosphatidylserine decarboxylase. Furthermore, PE(16:0/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from PS(16:0/20:4(5Z,8Z,11Z,14Z)) through its interaction with the enzyme phosphatidylserine decarboxylase. Finally, Cytidine monophosphate and PE(16:0/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from CDP-ethanolamine and DG(16:0/20:4(5Z,8Z,11Z,14Z)/0:0) through the action of the enzyme choline/ethanolaminephosphotransferase. In humans, PE(16:0/20:4(5Z,8Z,11Z,14Z)) is involved in phosphatidylcholine biosynthesis	http://www.hmdb.ca/metabolites/HMDB0008937

	PC(16:0/20:4(5Z,8Z,11Z,14Z)) pathway and phosphatidylethanolamine biosynthesis pe(16:0/20:4(5Z,8Z,11Z,14Z)) pathway.	

PE(16:0/22:2(13Z,16Z)) ; HMDB0008942	PE(16:0/22:2(13Z,16Z)), also known as PE(38:2) or GPEtn(16:0/22:2), belongs to the class of organic compounds known as phosphatidylethanolamines. These are glycerophosphoetahnolamines in which two fatty acids are bonded to the glycerol moiety through ester linkages. Thus, PE(16:0/22:2(13Z,16Z)) is considered to be a glycerophosphoethanolamine lipid molecule. PE(16:0/22:2(13Z,16Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(16:0/22:2(13Z,16Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(16:0/22:2(13Z,16Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(16:0/22:2(13Z,16Z)) participates in a number of enzymatic reactions. In particular, Cytidine monophosphate and PE(16:0/22:2(13Z,16Z)) can be biosynthesized from CDP-ethanolamine and DG(16:0/22:2(13Z,16Z)/0:0); which is mediated by the enzyme choline/ethanolaminephosphotransferase. Furthermore, PE(16:0/22:2(13Z,16Z)) can be biosynthesized from PS(16:0/22:2(13Z,16Z)); which is mediated by the enzyme phosphatidylserine decarboxylase. Furthermore, PE(16:0/22:2(13Z,16Z)) can be biosynthesized from PS(16:0/22:2(13Z,16Z)) through its interaction with the enzyme phosphatidylserine decarboxylase. Finally, Cytidine monophosphate and PE(16:0/22:2(13Z,16Z)) can be biosynthesized from CDP-ethanolamine and DG(16:0/22:2(13Z,16Z)/0:0) through its interaction with the enzyme choline/ethanolaminephosphotransferase. In humans, PE(16:0/22:2(13Z,16Z)) is involved in phosphatidylcholine biosynthesis PC(16:0/22:2(13Z,16Z)) pathway and phosphatidylethanolamine	http://www.hmdb.ca/metabolites/HMDB0008942

	biosynthesis pe(16:0/22:2(13Z,16Z)) pathway.	

PE(16:0/22:2(13Z,16Z)) ; HMDB08942	PE(16:0/22:2(13Z,16Z)), also known as PE(38:2) or GPEtn(16:0/22:2), belongs to the class of organic compounds known as phosphatidylethanolamines. These are glycerophosphoetahnolamines in which two fatty acids are bonded to the glycerol moiety through ester linkages. Thus, PE(16:0/22:2(13Z,16Z)) is considered to be a glycerophosphoethanolamine lipid molecule. PE(16:0/22:2(13Z,16Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(16:0/22:2(13Z,16Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(16:0/22:2(13Z,16Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(16:0/22:2(13Z,16Z)) participates in a number of enzymatic reactions. In particular, Cytidine monophosphate and PE(16:0/22:2(13Z,16Z)) can be biosynthesized from CDP-ethanolamine and DG(16:0/22:2(13Z,16Z)/0:0); which is mediated by the enzyme choline/ethanolaminephosphotransferase. Furthermore, PE(16:0/22:2(13Z,16Z)) can be biosynthesized from PS(16:0/22:2(13Z,16Z)); which is mediated by the enzyme phosphatidylserine decarboxylase. Furthermore, PE(16:0/22:2(13Z,16Z)) can be biosynthesized from PS(16:0/22:2(13Z,16Z)) through its interaction with the enzyme phosphatidylserine decarboxylase. Finally, Cytidine monophosphate and PE(16:0/22:2(13Z,16Z)) can be biosynthesized from CDP-ethanolamine and DG(16:0/22:2(13Z,16Z)/0:0) through its interaction with the enzyme choline/ethanolaminephosphotransferase. In humans, PE(16:0/22:2(13Z,16Z)) is involved in phosphatidylcholine biosynthesis PC(16:0/22:2(13Z,16Z)) pathway and phosphatidylethanolamine	http://www.hmdb.ca/metabolites/HMDB0008942

	biosynthesis pe(16:0/22:2(13Z,16Z)) pathway.	
PE(16:0/P-18:1(9Z)) ; HMDB0008952	PE(16:0/P-18:1(9Z)), also known as PE(16:1) or PE(16:0/P-18:1), belongs to the class of organic compounds known as glycerophosphoethanolamines. These are glycerolipids characterized by an ethanolamine ester of glycerophosphoric acid. As is the case with diacylglycerols, glycerophosphoethanolamines can have many different combinations of fatty acids of varying lengths and saturation attached to the C-1 and C-2 atoms. PE(16:0/P-18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(16:0/P-18:1(9Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(16:0/P-18:1(9Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0008952
PE(16:0/P-18:1(9Z)) ; HMDB08952	PE(16:0/P-18:1(9Z)), also known as PE(16:1) or PE(16:0/P-18:1), belongs to the class of organic compounds known as glycerophosphoethanolamines. These are glycerolipids characterized by an ethanolamine ester of glycerophosphoric acid. As is the case with diacylglycerols, glycerophosphoethanolamines can have many different combinations of fatty acids of varying lengths and saturation attached to the C-1 and C-2 atoms. PE(16:0/P-18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(16:0/P-18:1(9Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(16:0/P-18:1(9Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0008952

PE(18:0/18:0) ; HMDB0008991	PE(18:0/18:0), also known as DC18PE or dspe, belongs to the class of organic compounds known as phosphatidylethanolamines. These are glycerophosphoetahnolamines in which two fatty acids are bonded to the glycerol moiety through ester linkages. Thus, PE(18:0/18:0) is considered to be a glycerophosphoethanolamine lipid molecule. PE(18:0/18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(18:0/18:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(18:0/18:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(18:0/18:0) exists in all eukaryotes, ranging from yeast to humans. PE(18:0/18:0) participates in a number of enzymatic reactions. In particular, Cytidine monophosphate and PE(18:0/18:0) can be biosynthesized from CDP-ethanolamine and DG(18:0/18:0/0:0); which is mediated by the enzyme choline/ethanolaminephosphotransferase. Furthermore, PE(18:0/18:0) can be biosynthesized from PS(18:0/18:0) through its interaction with the enzyme phosphatidylserine decarboxylase. Furthermore, PE(18:0/18:0) can be biosynthesized from PS(18:0/18:0) through the action of the enzyme phosphatidylserine decarboxylase. Furthermore, Cytidine monophosphate and PE(18:0/18:0) can be biosynthesized from CDP-ethanolamine and DG(18:0/18:0/0:0) through the action of the enzyme choline/ethanolaminephosphotransferase. Furthermore, PE(18:0/18:0) and S-adenosylmethionine can be converted into pe-nme(18:0/18:0) and S-adenosylhomocysteine; which is mediated by the enzyme phosphatidylethanolamine N-methyltransferase. Finally, PE(18:0/18:0) can be	http://www.hmdb.ca/metabolites/HMDB0008991

	biosynthesized from lysope(18:0/0:0); which is catalyzed by the enzyme ALE1P acyltransferase. In humans, PE(18:0/18:0) is involved in phosphatidylcholine biosynthesis PC(18:0/18:0) pathway and phosphatidylethanolamine biosynthesis pe(18:0/18:0) pathway.	

PE(18:0/18:0) ; HMDB08991	PE(18:0/18:0), also known as DC18PE or dspe, belongs to the class of organic compounds known as phosphatidylethanolamines. These are glycerophosphoetahnolamines in which two fatty acids are bonded to the glycerol moiety through ester linkages. Thus, PE(18:0/18:0) is considered to be a glycerophosphoethanolamine lipid molecule. PE(18:0/18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(18:0/18:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(18:0/18:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(18:0/18:0) exists in all eukaryotes, ranging from yeast to humans. PE(18:0/18:0) participates in a number of enzymatic reactions. In particular, Cytidine monophosphate and PE(18:0/18:0) can be biosynthesized from CDP-ethanolamine and DG(18:0/18:0/0:0); which is mediated by the enzyme choline/ethanolaminephosphotransferase. Furthermore, PE(18:0/18:0) can be biosynthesized from PS(18:0/18:0) through its interaction with the enzyme phosphatidylserine decarboxylase. Furthermore, PE(18:0/18:0) can be biosynthesized from PS(18:0/18:0) through the action of the enzyme phosphatidylserine decarboxylase. Furthermore, Cytidine monophosphate and PE(18:0/18:0) can be biosynthesized from CDP-ethanolamine and DG(18:0/18:0/0:0) through the action of the enzyme choline/ethanolaminephosphotransferase. Furthermore, PE(18:0/18:0) and S-adenosylmethionine can be converted into pe-nme(18:0/18:0) and S-adenosylhomocysteine; which is mediated by the enzyme phosphatidylethanolamine N-methyltransferase. Finally, PE(18:0/18:0) can be	http://www.hmdb.ca/metabolites/HMDB0008991

	biosynthesized from lysope(18:0/0:0); which is catalyzed by the enzyme ALE1P acyltransferase. In humans, PE(18:0/18:0) is involved in phosphatidylcholine biosynthesis PC(18:0/18:0) pathway and phosphatidylethanolamine biosynthesis pe(18:0/18:0) pathway.	

PE(18:0/18:1(9Z)) ; HMDB0008993	PE(18:0/18:1(9Z)), also known as gpe(18:0/18:1) or PE(36:1), belongs to the class of organic compounds known as phosphatidylethanolamines. These are glycerophosphoetahnolamines in which two fatty acids are bonded to the glycerol moiety through ester linkages. Thus, PE(18:0/18:1(9Z)) is considered to be a glycerophosphoethanolamine lipid molecule. PE(18:0/18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(18:0/18:1(9Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(18:0/18:1(9Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(18:0/18:1(9Z)) exists in all eukaryotes, ranging from yeast to humans. PE(18:0/18:1(9Z)) participates in a number of enzymatic reactions. In particular, Cytidine monophosphate and PE(18:0/18:1(9Z)) can be biosynthesized from CDP-ethanolamine and DG(18:0/18:1(9Z)/0:0); which is catalyzed by the enzyme choline/ethanolaminephosphotransferase. Furthermore, PE(18:0/18:1(9Z)) can be biosynthesized from PS(18:0/18:1(9Z)); which is mediated by the enzyme phosphatidylserine decarboxylase. Furthermore, PE(18:0/18:1(9Z)) can be biosynthesized from PS(18:0/18:1(9Z)); which is catalyzed by the enzyme phosphatidylserine decarboxylase. Finally, Cytidine monophosphate and PE(18:0/18:1(9Z)) can be biosynthesized from CDP-ethanolamine and DG(18:0/18:1(9Z)/0:0) through its interaction with the enzyme choline/ethanolaminephosphotransferase. In humans, PE(18:0/18:1(9Z)) is involved in phosphatidylcholine biosynthesis PC(18:0/18:1(9Z)) pathway and phosphatidylethanolamine biosynthesis pe(18:0/18:1(9Z))	http://www.hmdb.ca/metabolites/HMDB0008993

	pathway.	

PE(18:0/18:1(9Z)) ; HMDB08993	PE(18:0/18:1(9Z)), also known as gpe(18:0/18:1) or PE(36:1), belongs to the class of organic compounds known as phosphatidylethanolamines. These are glycerophosphoetahnolamines in which two fatty acids are bonded to the glycerol moiety through ester linkages. Thus, PE(18:0/18:1(9Z)) is considered to be a glycerophosphoethanolamine lipid molecule. PE(18:0/18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(18:0/18:1(9Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(18:0/18:1(9Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(18:0/18:1(9Z)) exists in all eukaryotes, ranging from yeast to humans. PE(18:0/18:1(9Z)) participates in a number of enzymatic reactions. In particular, Cytidine monophosphate and PE(18:0/18:1(9Z)) can be biosynthesized from CDP-ethanolamine and DG(18:0/18:1(9Z)/0:0); which is catalyzed by the enzyme choline/ethanolaminephosphotransferase. Furthermore, PE(18:0/18:1(9Z)) can be biosynthesized from PS(18:0/18:1(9Z)); which is mediated by the enzyme phosphatidylserine decarboxylase. Furthermore, PE(18:0/18:1(9Z)) can be biosynthesized from PS(18:0/18:1(9Z)); which is catalyzed by the enzyme phosphatidylserine decarboxylase. Finally, Cytidine monophosphate and PE(18:0/18:1(9Z)) can be biosynthesized from CDP-ethanolamine and DG(18:0/18:1(9Z)/0:0) through its interaction with the enzyme choline/ethanolaminephosphotransferase. In humans, PE(18:0/18:1(9Z)) is involved in phosphatidylcholine biosynthesis PC(18:0/18:1(9Z)) pathway and phosphatidylethanolamine biosynthesis pe(18:0/18:1(9Z))	http://www.hmdb.ca/metabolites/HMDB0008993

	pathway.	

PE(18:0/18:2(9Z,12Z)) ; HMDB0008994	PE(18:0/18:2(9Z,12Z)), also known as PE(18:0/18:2) or GPEtn(36:2), belongs to the class of organic compounds known as phosphatidylethanolamines. These are glycerophosphoetahnolamines in which two fatty acids are bonded to the glycerol moiety through ester linkages. Thus, PE(18:0/18:2(9Z,12Z)) is considered to be a glycerophosphoethanolamine lipid molecule. PE(18:0/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(18:0/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(18:0/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(18:0/18:2(9Z,12Z)) participates in a number of enzymatic reactions. In particular, Cytidine monophosphate and PE(18:0/18:2(9Z,12Z)) can be biosynthesized from CDP-ethanolamine and DG(18:0/18:2(9Z,12Z)/0:0); which is mediated by the enzyme choline/ethanolaminephosphotransferase. Furthermore, PE(18:0/18:2(9Z,12Z)) can be biosynthesized from PS(18:0/18:2(9Z,12Z)); which is catalyzed by the enzyme phosphatidylserine decarboxylase. Furthermore, PE(18:0/18:2(9Z,12Z)) can be biosynthesized from PS(18:0/18:2(9Z,12Z)); which is mediated by the enzyme phosphatidylserine decarboxylase. Finally, Cytidine monophosphate and PE(18:0/18:2(9Z,12Z)) can be biosynthesized from CDP-ethanolamine and DG(18:0/18:2(9Z,12Z)/0:0) through the action of the enzyme choline/ethanolaminephosphotransferase. In humans, PE(18:0/18:2(9Z,12Z)) is involved in phosphatidylcholine biosynthesis PC(18:0/18:2(9Z,12Z)) pathway and phosphatidylethanolamine biosynthesis pe(18:0/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0008994

PE(18:0/18:2(9Z,12Z)) ; HMDB08994	PE(18:0/18:2(9Z,12Z)), also known as PE(18:0/18:2) or GPEtn(36:2), belongs to the class of organic compounds known as phosphatidylethanolamines. These are glycerophosphoetahnolamines in which two fatty acids are bonded to the glycerol moiety through ester linkages. Thus, PE(18:0/18:2(9Z,12Z)) is considered to be a glycerophosphoethanolamine lipid molecule. PE(18:0/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(18:0/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(18:0/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(18:0/18:2(9Z,12Z)) participates in a number of enzymatic reactions. In particular, Cytidine monophosphate and PE(18:0/18:2(9Z,12Z)) can be biosynthesized from CDP-ethanolamine and DG(18:0/18:2(9Z,12Z)/0:0); which is mediated by the enzyme choline/ethanolaminephosphotransferase. Furthermore, PE(18:0/18:2(9Z,12Z)) can be biosynthesized from PS(18:0/18:2(9Z,12Z)); which is catalyzed by the enzyme phosphatidylserine decarboxylase. Furthermore, PE(18:0/18:2(9Z,12Z)) can be biosynthesized from PS(18:0/18:2(9Z,12Z)); which is mediated by the enzyme phosphatidylserine decarboxylase. Finally, Cytidine monophosphate and PE(18:0/18:2(9Z,12Z)) can be biosynthesized from CDP-ethanolamine and DG(18:0/18:2(9Z,12Z)/0:0) through the action of the enzyme choline/ethanolaminephosphotransferase. In humans, PE(18:0/18:2(9Z,12Z)) is involved in phosphatidylcholine biosynthesis PC(18:0/18:2(9Z,12Z)) pathway and phosphatidylethanolamine biosynthesis pe(18:0/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0008994

PE(18:0/20:4(5Z,8Z,11Z,14Z)) ; HMDB0009003	PE(18:0/20:4(5Z,8Z,11Z,14Z)), also known as PE(18:0/20:4) or 1-stearoyl-2-arachidonoyl-gpe, belongs to the class of organic compounds known as phosphatidylethanolamines. These are glycerophosphoetahnolamines in which two fatty acids are bonded to the glycerol moiety through ester linkages. Thus, PE(18:0/20:4(5Z,8Z,11Z,14Z)) is considered to be a glycerophosphoethanolamine lipid molecule. PE(18:0/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(18:0/20:4(5Z,8Z,11Z,14Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(18:0/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(18:0/20:4(5Z,8Z,11Z,14Z)) participates in a number of enzymatic reactions. In particular, Cytidine monophosphate and PE(18:0/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from CDP-ethanolamine and DG(18:0/20:4(5Z,8Z,11Z,14Z)/0:0) through its interaction with the enzyme choline/ethanolaminephosphotransferase. Furthermore, PE(18:0/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from PS(18:0/20:4(5Z,8Z,11Z,14Z)); which is catalyzed by the enzyme phosphatidylserine decarboxylase. Furthermore, PE(18:0/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from PS(18:0/20:4(5Z,8Z,11Z,14Z)); which is catalyzed by the enzyme phosphatidylserine decarboxylase. Finally, Cytidine monophosphate and PE(18:0/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from CDP-ethanolamine and DG(18:0/20:4(5Z,8Z,11Z,14Z)/0:0); which is catalyzed by the enzyme choline/ethanolaminephosphotransferase. In humans, PE(18:0/20:4(5Z,8Z,11Z,14Z)) is involved in phosphatidylcholine	http://www.hmdb.ca/metabolites/HMDB0009003

	biosynthesis PC(18:0/20:4(5Z,8Z,11Z,14Z)) pathway and phosphatidylethanolamine biosynthesis pe(18:0/20:4(5Z,8Z,11Z,14Z)) pathway.	

PE(18:0/20:4(5Z,8Z,11Z,14Z)) ; HMDB09003	PE(18:0/20:4(5Z,8Z,11Z,14Z)), also known as PE(18:0/20:4) or 1-stearoyl-2-arachidonoyl-gpe, belongs to the class of organic compounds known as phosphatidylethanolamines. These are glycerophosphoetahnolamines in which two fatty acids are bonded to the glycerol moiety through ester linkages. Thus, PE(18:0/20:4(5Z,8Z,11Z,14Z)) is considered to be a glycerophosphoethanolamine lipid molecule. PE(18:0/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(18:0/20:4(5Z,8Z,11Z,14Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(18:0/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(18:0/20:4(5Z,8Z,11Z,14Z)) participates in a number of enzymatic reactions. In particular, Cytidine monophosphate and PE(18:0/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from CDP-ethanolamine and DG(18:0/20:4(5Z,8Z,11Z,14Z)/0:0) through its interaction with the enzyme choline/ethanolaminephosphotransferase. Furthermore, PE(18:0/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from PS(18:0/20:4(5Z,8Z,11Z,14Z)); which is catalyzed by the enzyme phosphatidylserine decarboxylase. Furthermore, PE(18:0/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from PS(18:0/20:4(5Z,8Z,11Z,14Z)); which is catalyzed by the enzyme phosphatidylserine decarboxylase. Finally, Cytidine monophosphate and PE(18:0/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from CDP-ethanolamine and DG(18:0/20:4(5Z,8Z,11Z,14Z)/0:0); which is catalyzed by the enzyme choline/ethanolaminephosphotransferase. In humans, PE(18:0/20:4(5Z,8Z,11Z,14Z)) is involved in phosphatidylcholine	http://www.hmdb.ca/metabolites/HMDB0009003

	biosynthesis PC(18:0/20:4(5Z,8Z,11Z,14Z)) pathway and phosphatidylethanolamine biosynthesis pe(18:0/20:4(5Z,8Z,11Z,14Z)) pathway.	

PE(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) ; HMDB0009012	PE(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)), also known as PE(18:0/22:6) or 1-stearoyl-2-docosahexaenoyl-gpe, belongs to the class of organic compounds known as phosphatidylethanolamines. These are glycerophosphoetahnolamines in which two fatty acids are bonded to the glycerol moiety through ester linkages. Thus, PE(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is considered to be a glycerophosphoethanolamine lipid molecule. PE(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) participates in a number of enzymatic reactions. In particular, Cytidine monophosphate and PE(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) can be biosynthesized from CDP-ethanolamine and DG(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0) through the action of the enzyme choline/ethanolaminephosphotransferase. Furthermore, PE(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) can be biosynthesized from PS(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) through its interaction with the enzyme phosphatidylserine decarboxylase. Furthermore, PE(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) can be biosynthesized from PS(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) through its interaction with the enzyme phosphatidylserine decarboxylase. Finally, Cytidine monophosphate and PE(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) can be biosynthesized from CDP-ethanolamine and DG(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0) through the action of the enzyme choline/ethanolaminephosphotransferase. In humans, PE(18:0/22:6(4Z,7Z,10Z,13Z,16Z,	http://www.hmdb.ca/metabolites/HMDB0009012

	19Z)) is involved in phosphatidylethanolamine biosynthesis pe(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) pathway and phosphatidylcholine biosynthesis PC(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) pathway.	

PE(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) ; HMDB09012	PE(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)), also known as PE(18:0/22:6) or 1-stearoyl-2-docosahexaenoyl-gpe, belongs to the class of organic compounds known as phosphatidylethanolamines. These are glycerophosphoetahnolamines in which two fatty acids are bonded to the glycerol moiety through ester linkages. Thus, PE(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is considered to be a glycerophosphoethanolamine lipid molecule. PE(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) participates in a number of enzymatic reactions. In particular, Cytidine monophosphate and PE(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) can be biosynthesized from CDP-ethanolamine and DG(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0) through the action of the enzyme choline/ethanolaminephosphotransferase. Furthermore, PE(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) can be biosynthesized from PS(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) through its interaction with the enzyme phosphatidylserine decarboxylase. Furthermore, PE(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) can be biosynthesized from PS(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) through its interaction with the enzyme phosphatidylserine decarboxylase. Finally, Cytidine monophosphate and PE(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) can be biosynthesized from CDP-ethanolamine and DG(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)/0:0) through the action of the enzyme choline/ethanolaminephosphotransferase. In humans, PE(18:0/22:6(4Z,7Z,10Z,13Z,16Z,	http://www.hmdb.ca/metabolites/HMDB0009012

	19Z)) is involved in phosphatidylethanolamine biosynthesis pe(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) pathway and phosphatidylcholine biosynthesis PC(18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) pathway.	
PE(18:0/P-18:0) ; HMDB0009016	PE(18:0/P-18:0), also known as PE(18:0), belongs to the class of organic compounds known as glycerophosphoethanolamines. These are glycerolipids characterized by an ethanolamine ester of glycerophosphoric acid. As is the case with diacylglycerols, glycerophosphoethanolamines can have many different combinations of fatty acids of varying lengths and saturation attached to the C-1 and C-2 atoms. PE(18:0/P-18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(18:0/P-18:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(18:0/P-18:0) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0009016
PE(18:0/P-18:0) ; HMDB09016	PE(18:0/P-18:0), also known as PE(18:0), belongs to the class of organic compounds known as glycerophosphoethanolamines. These are glycerolipids characterized by an ethanolamine ester of glycerophosphoric acid. As is the case with diacylglycerols, glycerophosphoethanolamines can have many different combinations of fatty acids of varying lengths and saturation attached to the C-1 and C-2 atoms. PE(18:0/P-18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(18:0/P-18:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(18:0/P-18:0) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0009016

PE(18:1(9Z)/18:2(9Z,12Z)) ; HMDB0009060	PE(18:1(9Z)/18:2(9Z,12Z)), also known as PE(18:1/18:2) or 1-oleoyl-2-linoleoyl-gpe, belongs to the class of organic compounds known as phosphatidylethanolamines. These are glycerophosphoetahnolamines in which two fatty acids are bonded to the glycerol moiety through ester linkages. Thus, PE(18:1(9Z)/18:2(9Z,12Z)) is considered to be a glycerophosphoethanolamine lipid molecule. PE(18:1(9Z)/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(18:1(9Z)/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(18:1(9Z)/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(18:1(9Z)/18:2(9Z,12Z)) participates in a number of enzymatic reactions. In particular, Cytidine monophosphate and PE(18:1(9Z)/18:2(9Z,12Z)) can be biosynthesized from CDP-ethanolamine and DG(18:1(9Z)/18:2(9Z,12Z)/0:0) through its interaction with the enzyme choline/ethanolaminephosphotransferase. Furthermore, PE(18:1(9Z)/18:2(9Z,12Z)) can be biosynthesized from PS(18:1(9Z)/18:2(9Z,12Z)); which is catalyzed by the enzyme phosphatidylserine decarboxylase. Furthermore, PE(18:1(9Z)/18:2(9Z,12Z)) can be biosynthesized from PS(18:1(9Z)/18:2(9Z,12Z)); which is catalyzed by the enzyme phosphatidylserine decarboxylase. Finally, Cytidine monophosphate and PE(18:1(9Z)/18:2(9Z,12Z)) can be biosynthesized from CDP-ethanolamine and DG(18:1(9Z)/18:2(9Z,12Z)/0:0); which is catalyzed by the enzyme choline/ethanolaminephosphotransferase. In humans, PE(18:1(9Z)/18:2(9Z,12Z)) is involved in phosphatidylethanolamine	http://www.hmdb.ca/metabolites/HMDB0009060

	biosynthesis pe(18:1(9Z)/18:2(9Z,12Z)) pathway and phosphatidylcholine biosynthesis PC(18:1(9Z)/18:2(9Z,12Z)) pathway.	

PE(18:1(9Z)/18:2(9Z,12Z)) ; HMDB09060	PE(18:1(9Z)/18:2(9Z,12Z)), also known as PE(18:1/18:2) or 1-oleoyl-2-linoleoyl-gpe, belongs to the class of organic compounds known as phosphatidylethanolamines. These are glycerophosphoetahnolamines in which two fatty acids are bonded to the glycerol moiety through ester linkages. Thus, PE(18:1(9Z)/18:2(9Z,12Z)) is considered to be a glycerophosphoethanolamine lipid molecule. PE(18:1(9Z)/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(18:1(9Z)/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(18:1(9Z)/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(18:1(9Z)/18:2(9Z,12Z)) participates in a number of enzymatic reactions. In particular, Cytidine monophosphate and PE(18:1(9Z)/18:2(9Z,12Z)) can be biosynthesized from CDP-ethanolamine and DG(18:1(9Z)/18:2(9Z,12Z)/0:0) through its interaction with the enzyme choline/ethanolaminephosphotransferase. Furthermore, PE(18:1(9Z)/18:2(9Z,12Z)) can be biosynthesized from PS(18:1(9Z)/18:2(9Z,12Z)); which is catalyzed by the enzyme phosphatidylserine decarboxylase. Furthermore, PE(18:1(9Z)/18:2(9Z,12Z)) can be biosynthesized from PS(18:1(9Z)/18:2(9Z,12Z)); which is catalyzed by the enzyme phosphatidylserine decarboxylase. Finally, Cytidine monophosphate and PE(18:1(9Z)/18:2(9Z,12Z)) can be biosynthesized from CDP-ethanolamine and DG(18:1(9Z)/18:2(9Z,12Z)/0:0); which is catalyzed by the enzyme choline/ethanolaminephosphotransferase. In humans, PE(18:1(9Z)/18:2(9Z,12Z)) is involved in phosphatidylethanolamine	http://www.hmdb.ca/metabolites/HMDB0009060

	biosynthesis pe(18:1(9Z)/18:2(9Z,12Z)) pathway and phosphatidylcholine biosynthesis PC(18:1(9Z)/18:2(9Z,12Z)) pathway.	

PE(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB0009069	PE(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)), also known as phophatidylethanolamine(38:5) or PE(18:1/20:4), belongs to the class of organic compounds known as phosphatidylethanolamines. These are glycerophosphoetahnolamines in which two fatty acids are bonded to the glycerol moiety through ester linkages. Thus, PE(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a glycerophosphoethanolamine lipid molecule. PE(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) participates in a number of enzymatic reactions. In particular, Cytidine monophosphate and PE(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from CDP-ethanolamine and DG(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)/0:0) through its interaction with the enzyme choline/ethanolaminephosphotransferase. Furthermore, PE(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from PS(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) through its interaction with the enzyme phosphatidylserine decarboxylase. Furthermore, PE(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from PS(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) through its interaction with the enzyme phosphatidylserine decarboxylase. Finally, Cytidine monophosphate and PE(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from CDP-ethanolamine and DG(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)/0:0) through the action of the enzyme choline/ethanolaminephosphotransferase. In humans, PE(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)	http://www.hmdb.ca/metabolites/HMDB0009069

	) is involved in phosphatidylcholine biosynthesis PC(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) pathway and phosphatidylethanolamine biosynthesis pe(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	

PE(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB09069	PE(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)), also known as phophatidylethanolamine(38:5) or PE(18:1/20:4), belongs to the class of organic compounds known as phosphatidylethanolamines. These are glycerophosphoetahnolamines in which two fatty acids are bonded to the glycerol moiety through ester linkages. Thus, PE(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a glycerophosphoethanolamine lipid molecule. PE(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) participates in a number of enzymatic reactions. In particular, Cytidine monophosphate and PE(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from CDP-ethanolamine and DG(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)/0:0) through its interaction with the enzyme choline/ethanolaminephosphotransferase. Furthermore, PE(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from PS(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) through its interaction with the enzyme phosphatidylserine decarboxylase. Furthermore, PE(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from PS(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) through its interaction with the enzyme phosphatidylserine decarboxylase. Finally, Cytidine monophosphate and PE(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from CDP-ethanolamine and DG(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)/0:0) through the action of the enzyme choline/ethanolaminephosphotransferase. In humans, PE(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)	http://www.hmdb.ca/metabolites/HMDB0009069

	) is involved in phosphatidylcholine biosynthesis PC(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) pathway and phosphatidylethanolamine biosynthesis pe(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	
PE(18:1(9Z)/P-18:0) ; HMDB0009082	PE(18:1(9Z)/P-18:0), also known as PE(18:1) or PE(18:1/P-18:0), belongs to the class of organic compounds known as glycerophosphoethanolamines. These are glycerolipids characterized by an ethanolamine ester of glycerophosphoric acid. As is the case with diacylglycerols, glycerophosphoethanolamines can have many different combinations of fatty acids of varying lengths and saturation attached to the C-1 and C-2 atoms. PE(18:1(9Z)/P-18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(18:1(9Z)/P-18:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(18:1(9Z)/P-18:0) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0009082
PE(18:1(9Z)/P-18:0) ; HMDB09082	PE(18:1(9Z)/P-18:0), also known as PE(18:1) or PE(18:1/P-18:0), belongs to the class of organic compounds known as glycerophosphoethanolamines. These are glycerolipids characterized by an ethanolamine ester of glycerophosphoric acid. As is the case with diacylglycerols, glycerophosphoethanolamines can have many different combinations of fatty acids of varying lengths and saturation attached to the C-1 and C-2 atoms. PE(18:1(9Z)/P-18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(18:1(9Z)/P-18:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(18:1(9Z)/P-18:0) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0009082

PE(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB0009102	PE(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)), also known as GPEtn(38:6) or phophatidylethanolamine(18:2/20:4), belongs to the class of organic compounds known as phosphatidylethanolamines. These are glycerophosphoetahnolamines in which two fatty acids are bonded to the glycerol moiety through ester linkages. Thus, PE(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a glycerophosphoethanolamine lipid molecule. PE(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) participates in a number of enzymatic reactions. In particular, Cytidine monophosphate and PE(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from CDP-ethanolamine and DG(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)/0:0); which is catalyzed by the enzyme choline/ethanolaminephosphotransferase. Furthermore, PE(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from PS(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)); which is catalyzed by the enzyme phosphatidylserine decarboxylase. Furthermore, PE(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from PS(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)); which is mediated by the enzyme phosphatidylserine decarboxylase. Finally, Cytidine monophosphate and PE(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from CDP-ethanolamine and DG(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)/0:0); which is catalyzed by the enzyme choline/ethanolaminephosphotransferase. In humans, PE(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,	http://www.hmdb.ca/metabolites/HMDB0009102

	14Z)) is involved in phosphatidylcholine biosynthesis PC(18:2(9Z,12Z)/20:4(5Z,8Z,11Z, 14Z)) pathway and phosphatidylethanolamine biosynthesis pe(18:2(9Z,12Z)/20:4(5Z,8Z,11Z, 14Z)) pathway.	

PE(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB09102	PE(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)), also known as GPEtn(38:6) or phophatidylethanolamine(18:2/20:4), belongs to the class of organic compounds known as phosphatidylethanolamines. These are glycerophosphoetahnolamines in which two fatty acids are bonded to the glycerol moiety through ester linkages. Thus, PE(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a glycerophosphoethanolamine lipid molecule. PE(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) participates in a number of enzymatic reactions. In particular, Cytidine monophosphate and PE(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from CDP-ethanolamine and DG(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)/0:0); which is catalyzed by the enzyme choline/ethanolaminephosphotransferase. Furthermore, PE(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from PS(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)); which is catalyzed by the enzyme phosphatidylserine decarboxylase. Furthermore, PE(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from PS(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)); which is mediated by the enzyme phosphatidylserine decarboxylase. Finally, Cytidine monophosphate and PE(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from CDP-ethanolamine and DG(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)/0:0); which is catalyzed by the enzyme choline/ethanolaminephosphotransferase. In humans, PE(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,	http://www.hmdb.ca/metabolites/HMDB0009102

	14Z)) is involved in phosphatidylcholine biosynthesis PC(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) pathway and phosphatidylethanolamine biosynthesis pe(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	
PE(P-16:0/18:2(9Z,12Z)) ; HMDB0011343	PE(P-16:0/18:2(9Z,12Z)), also known as GPEtn(16:0/18:2) or GPEtn(34:2), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acylglycerophosphoethanolamines. These are glycerophosphoethanolamines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. Thus, PE(P-16:0/18:2(9Z,12Z)) is considered to be a glycerophosphoethanolamine lipid molecule. PE(P-16:0/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(P-16:0/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(P-16:0/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(P-16:0/18:2(9Z,12Z)) can be biosynthesized from linoleic acid.	http://www.hmdb.ca/metabolites/HMDB0011343

PE(P-16:0/18:2(9Z,12Z)) ; HMDB11343	PE(P-16:0/18:2(9Z,12Z)), also known as GPEtn(16:0/18:2) or GPEtn(34:2), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acylglycerophosphoethanolamines. These are glycerophosphoethanolamines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. Thus, PE(P-16:0/18:2(9Z,12Z)) is considered to be a glycerophosphoethanolamine lipid molecule. PE(P-16:0/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(P-16:0/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(P-16:0/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(P-16:0/18:2(9Z,12Z)) can be biosynthesized from linoleic acid.	http://www.hmdb.ca/metabolites/HMDB0011343

PE(P-18:0/20:3(8Z,11Z,14Z)) ; HMDB0011384	PE(P-18:0/20:3(8Z,11Z,14Z)), also known as pe p-18:0/20:3 or GPEtn(18:0/20:3), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acylglycerophosphoethanolamines. These are glycerophosphoethanolamines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. Thus, PE(P-18:0/20:3(8Z,11Z,14Z)) is considered to be a glycerophosphoethanolamine lipid molecule. PE(P-18:0/20:3(8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(P-18:0/20:3(8Z,11Z,14Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(P-18:0/20:3(8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(P-18:0/20:3(8Z,11Z,14Z)) can be biosynthesized from all-cis-icosa-8,11,14-trienoic acid.	http://www.hmdb.ca/metabolites/HMDB0011384

PE(P-18:0/20:3(8Z,11Z,14Z)) ; HMDB11384	PE(P-18:0/20:3(8Z,11Z,14Z)), also known as pe p-18:0/20:3 or GPEtn(18:0/20:3), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acylglycerophosphoethanolamines. These are glycerophosphoethanolamines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. Thus, PE(P-18:0/20:3(8Z,11Z,14Z)) is considered to be a glycerophosphoethanolamine lipid molecule. PE(P-18:0/20:3(8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(P-18:0/20:3(8Z,11Z,14Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(P-18:0/20:3(8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. PE(P-18:0/20:3(8Z,11Z,14Z)) can be biosynthesized from all-cis-icosa-8,11,14-trienoic acid.	http://www.hmdb.ca/metabolites/HMDB0011384

PE(P-18:0/20:4(8Z,11Z,14Z,17Z)); HMDB0011386	PE(P-18:0/20:4(8Z,11Z,14Z,17Z)), also known as phophatidylethanolamine(18:0/20:4) or 1-(1-enyl-stearoyl)-2-eicsoate, belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acylglycerophosphoethanolamines. These are glycerophosphoethanolamines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. PE(P-18:0/20:4(8Z,11Z,14Z,17Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(P-18:0/20:4(8Z,11Z,14Z,17Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(P-18:0/20:4(8Z,11Z,14Z,17Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011386
PE(P-18:0/20:4(8Z,11Z,14Z,17Z)); HMDB11386	PE(P-18:0/20:4(8Z,11Z,14Z,17Z)), also known as phophatidylethanolamine(18:0/20:4) or 1-(1-enyl-stearoyl)-2-eicsoate, belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acylglycerophosphoethanolamines. These are glycerophosphoethanolamines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. PE(P-18:0/20:4(8Z,11Z,14Z,17Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(P-18:0/20:4(8Z,11Z,14Z,17Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(P-18:0/20:4(8Z,11Z,14Z,17Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011386

PE(P-18:0/20:5(5Z,8Z,11Z,14Z,17Z)) ; HMDB0011387	PE(P-18:0/20:5(5Z,8Z,11Z,14Z,17Z)), also known as phophatidylethanolamine(18:0/20:5) or GPEtn(18:0/20:5), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acylglycerophosphoethanolamines. These are glycerophosphoethanolamines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. Thus, PE(P-18:0/20:5(5Z,8Z,11Z,14Z,17Z)) is considered to be a glycerophosphoethanolamine lipid molecule. PE(P-18:0/20:5(5Z,8Z,11Z,14Z,17Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(P-18:0/20:5(5Z,8Z,11Z,14Z,17Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(P-18:0/20:5(5Z,8Z,11Z,14Z,17Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011387

PE(P-18:0/20:5(5Z,8Z,11Z,14Z,17Z)) ; HMDB11387	PE(P-18:0/20:5(5Z,8Z,11Z,14Z,17Z)), also known as phophatidylethanolamine(18:0/20:5) or GPEtn(18:0/20:5), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acylglycerophosphoethanolamines. These are glycerophosphoethanolamines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. Thus, PE(P-18:0/20:5(5Z,8Z,11Z,14Z,17Z)) is considered to be a glycerophosphoethanolamine lipid molecule. PE(P-18:0/20:5(5Z,8Z,11Z,14Z,17Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(P-18:0/20:5(5Z,8Z,11Z,14Z,17Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(P-18:0/20:5(5Z,8Z,11Z,14Z,17Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011387

PE(P-18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) ; HMDB0011394	PE(P-18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)), also known as phophatidylethanolamine(18:0/22:6) or 1-(1-enyl-stearoyl)-2-docosahexaenoyl-gpe, belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acylglycerophosphoethanolamines. These are glycerophosphoethanolamines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. Thus, PE(P-18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is considered to be a glycerophosphoethanolamine lipid molecule. PE(P-18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(P-18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(P-18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011394

PE(P-18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) ; HMDB11394	PE(P-18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)), also known as phophatidylethanolamine(18:0/22:6) or 1-(1-enyl-stearoyl)-2-docosahexaenoyl-gpe, belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acylglycerophosphoethanolamines. These are glycerophosphoethanolamines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. Thus, PE(P-18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is considered to be a glycerophosphoethanolamine lipid molecule. PE(P-18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(P-18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(P-18:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011394
PE(P-18:1(11Z)/18:3(6Z,9Z,12Z)) ; HMDB0011410	PE(P-18:1(11Z)/18:3(6Z,9Z,12Z)), also known as GPEtn(18:1/18:3) or GPEtn(36:4), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acylglycerophosphoethanolamines. These are glycerophosphoethanolamines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. PE(P-18:1(11Z)/18:3(6Z,9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(P-18:1(11Z)/18:3(6Z,9Z,12Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(P-18:1(11Z)/18:3(6Z,9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011410

PE(P-18:1(11Z)/18:3(6Z,9Z,12Z)); HMDB11410	PE(P-18:1(11Z)/18:3(6Z,9Z,12Z)), also known as GPEtn(18:1/18:3) or GPEtn(36:4), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acylglycerophosphoethanolamines. These are glycerophosphoethanolamines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. PE(P-18:1(11Z)/18:3(6Z,9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(P-18:1(11Z)/18:3(6Z,9Z,12Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(P-18:1(11Z)/18:3(6Z,9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011410

PE(P-18:1(11Z)/20:5(5Z,8Z,11Z,14Z,17Z)) ; HMDB0011420	PE(P-18:1(11Z)/20:5(5Z,8Z,11Z,14Z,17Z)) belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acylglycerophosphoethanolamines. These are glycerophosphoethanolamines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. PE(P-18:1(11Z)/20:5(5Z,8Z,11Z,14Z,17Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(P-18:1(11Z)/20:5(5Z,8Z,11Z,14Z,17Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(P-18:1(11Z)/20:5(5Z,8Z,11Z,14Z,17Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. Outside of the human body, PE(P-18:1(11Z)/20:5(5Z,8Z,11Z,14Z,17Z)) can be found in a number of food items such as common wheat, soy bean, sunflower, and sesame. This makes PE(P-18:1(11Z)/20:5(5Z,8Z,11Z,14Z,17Z)) a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0011420

PE(P-18:1(11Z)/20:5(5Z,8Z,11Z,14Z,17Z)) ; HMDB11420	PE(P-18:1(11Z)/20:5(5Z,8Z,11Z,14Z,17Z)) belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acylglycerophosphoethanolamines. These are glycerophosphoethanolamines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. PE(P-18:1(11Z)/20:5(5Z,8Z,11Z,14Z,17Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(P-18:1(11Z)/20:5(5Z,8Z,11Z,14Z,17Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(P-18:1(11Z)/20:5(5Z,8Z,11Z,14Z,17Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane. Outside of the human body, PE(P-18:1(11Z)/20:5(5Z,8Z,11Z,14Z,17Z)) can be found in a number of food items such as common wheat, soy bean, sunflower, and sesame. This makes PE(P-18:1(11Z)/20:5(5Z,8Z,11Z,14Z,17Z)) a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0011420

PE(P-18:1(9Z)/18:1(9Z)) ; HMDB0011441	PE(P-18:1(9Z)/18:1(9Z)), also known as GPEtn(18:1/18:1) or GPEtn(36:2), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acylglycerophosphoethanolamines. These are glycerophosphoethanolamines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. PE(P-18:1(9Z)/18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(P-18:1(9Z)/18:1(9Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(P-18:1(9Z)/18:1(9Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011441
PE(P-18:1(9Z)/18:1(9Z)) ; HMDB11441	PE(P-18:1(9Z)/18:1(9Z)), also known as GPEtn(18:1/18:1) or GPEtn(36:2), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acylglycerophosphoethanolamines. These are glycerophosphoethanolamines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. PE(P-18:1(9Z)/18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(P-18:1(9Z)/18:1(9Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(P-18:1(9Z)/18:1(9Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011441

PE(P-18:1(9Z)/18:2(9Z,12Z)) ; HMDB0011442	PE(P-18:1(9Z)/18:2(9Z,12Z)), also known as GPEtn(18:1/18:2) or GPEtn(36:3), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acylglycerophosphoethanolamines. These are glycerophosphoethanolamines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. PE(P-18:1(9Z)/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(P-18:1(9Z)/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(P-18:1(9Z)/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011442
PE(P-18:1(9Z)/18:2(9Z,12Z)) ; HMDB11442	PE(P-18:1(9Z)/18:2(9Z,12Z)), also known as GPEtn(18:1/18:2) or GPEtn(36:3), belongs to the class of organic compounds known as 1-(1z-alkenyl),2-acylglycerophosphoethanolamines. These are glycerophosphoethanolamines that carry exactly one acyl chain attached to the glycerol moiety through an ester linkage at the O2-position, and one 1Z-alkenyl chain attached through an ether linkage at the O1-position. PE(P-18:1(9Z)/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. PE(P-18:1(9Z)/18:2(9Z,12Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PE(P-18:1(9Z)/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and intracellular membrane.	http://www.hmdb.ca/metabolites/HMDB0011442

Pentadecanoic acid ; HMDB0000826	Pentadecylic acid, also known as C15 or pentadecylate, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Pentadecylic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Pentadecylic acid has been found in human adipose tissue tissue, and has also been detected in most biofluids, including saliva, blood, feces, and urine. Within the cell, pentadecylic acid is primarily located in the cytoplasm, membrane (predicted from logP) and adiposome. Pentadecylic acid is also a parent compound for other transformation products, including but not limited to, (3S,4S)-3-hydroxytetradecane-1,3,4-tricarboxylic acid, 2-hydroxypentadecanoic acid, and cholesteryl pentadecanoate.	http://www.hmdb.ca/metabolites/HMDB0000826
Pentadecanoic acid ; HMDB00826	Pentadecylic acid, also known as C15 or pentadecylate, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Pentadecylic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Pentadecylic acid has been found in human adipose tissue tissue, and has also been detected in most biofluids, including saliva, blood, feces, and urine. Within the cell, pentadecylic acid is primarily located in the cytoplasm, membrane (predicted from logP) and adiposome. Pentadecylic acid is also a parent compound for other transformation products, including but not limited to, (3S,4S)-3-hydroxytetradecane-1,3,4-tricarboxylic acid, 2-hydroxypentadecanoic acid, and cholesteryl pentadecanoate.	http://www.hmdb.ca/metabolites/HMDB0000826

Phenol sulphate ; HMDB0060015	Phenol sulphate, also known as phenylsulfate or aryl sulphate, belongs to the class of organic compounds known as phenylsulfates. Phenylsulfates are compounds containing a sulfuric acid group conjugated to a phenyl group. Phenol sulphate is slightly soluble (in water) and an extremely strong acidic compound (based on its pKa). Phenol sulphate has been detected in multiple biofluids, such as feces and urine. Within the cell, phenol sulphate is primarily located in the cytoplasm. Adenosine 3',5'-diphosphate and phenol sulphate can be biosynthesized from phosphoadenosine phosphosulfate and phenol through the action of the enzyme sulfotransferase 1A1. In humans, phenol sulphate is involved in the sulfate/sulfite metabolism pathway. Phenol sulphate is also involved in the metabolic disorder called sulfite oxidase deficiency.	http://www.hmdb.ca/metabolites/HMDB0060015
Phenylacetylglutamine ; HMDB0006344	Alpha-N-Phenylacetyl-L-glutamine belongs to the class of organic compounds known as n-acyl-alpha amino acids. N-acyl-alpha amino acids are compounds containing an alpha amino acid which bears an acyl group at its terminal nitrogen atom. Alpha-N-Phenylacetyl-L-glutamine is considered to be a practically insoluble (in water) and relatively neutral molecule. Alpha-N-Phenylacetyl-L-glutamine has been detected in multiple biofluids, such as urine and blood. Within the cell, Alpha-N-phenylacetyl-L-glutamine is primarily located in the cytoplasm. Alpha-N-Phenylacetyl-L-glutamine can be biosynthesized from L-glutamine through the action of the enzyme glycine N-acyltransferase. In humans, Alpha-N-phenylacetyl-L-glutamine is involved in the phenylacetate metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0006344

Phenylacetylglutamine ; HMDB06344	Alpha-N-Phenylacetyl-L-glutamine belongs to the class of organic compounds known as n-acyl-alpha amino acids. N-acyl-alpha amino acids are compounds containing an alpha amino acid which bears an acyl group at its terminal nitrogen atom. Alpha-N-Phenylacetyl-L-glutamine is considered to be a practically insoluble (in water) and relatively neutral molecule. Alpha-N-Phenylacetyl-L-glutamine has been detected in multiple biofluids, such as urine and blood. Within the cell, Alpha-N-phenylacetyl-L-glutamine is primarily located in the cytoplasm. Alpha-N-Phenylacetyl-L-glutamine can be biosynthesized from L-glutamine through the action of the enzyme glycine N-acyltransferase. In humans, Alpha-N-phenylacetyl-L-glutamine is involved in the phenylacetate metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0006344
Phenylalanyl-Glycine ; HMDB0028995	Phenylalanyl-glycine, also known as F-g dipeptide or phe-gly, belongs to the class of organic compounds known as dipeptides. These are organic compounds containing a sequence of exactly two alpha-amino acids joined by a peptide bond. Phenylalanyl-glycine is considered to be a practically insoluble (in water) and relatively neutral molecule.	http://www.hmdb.ca/metabolites/HMDB0028995
Phenyllactic acid ; HMDB0000779	Phenyllactic acid, also known as B-phenyllactate, belongs to the class of organic compounds known as phenylpropanoic acids. Phenylpropanoic acids are compounds with a structure containing a benzene ring conjugated to a propanoic acid. Phenyllactic acid exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Phenyllactic acid has been primarily detected in saliva, feces, urine, and blood. Phenyllactic acid can be biosynthesized from rac-lactic acid.	http://www.hmdb.ca/metabolites/HMDB0000779

Phenyllactic acid ; HMDB00779	Phenyllactic acid, also known as B-phenyllactate, belongs to the class of organic compounds known as phenylpropanoic acids. Phenylpropanoic acids are compounds with a structure containing a benzene ring conjugated to a propanoic acid. Phenyllactic acid exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Phenyllactic acid has been primarily detected in saliva, feces, urine, and blood. Phenyllactic acid can be biosynthesized from rac-lactic acid.	http://www.hmdb.ca/metabolites/HMDB0000779
Phenylpyruvic acid ; HMDB0000205	Keto-phenylpyruvic acid, also known as 3-phenyl-2-oxopropanoate or a-ketohydrocinnamate, belongs to the class of organic compounds known as phenylpyruvic acid derivatives. Phenylpyruvic acid derivatives are compounds containing a phenylpyruvic acid moiety, which consists of a phenyl group substituted at the second position by an pyruvic acid. Keto-phenylpyruvic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Keto-phenylpyruvic acid has been detected in multiple biofluids, such as urine and blood. Within the cell, keto-phenylpyruvic acid is primarily located in the cytoplasm and mitochondria. Keto-phenylpyruvic acid exists in all eukaryotes, ranging from yeast to humans. In humans, keto-phenylpyruvic acid is involved in the phenylalanine and tyrosine metabolism pathway. Keto-phenylpyruvic acid is also involved in a few metabolic disorders, which include the tyrosinemia type 2 (or richner-hanhart syndrome) pathway, the phenylketonuria pathway, and the tyrosinemia type 3 (tyro3) pathway.	http://www.hmdb.ca/metabolites/HMDB0000205

Phosphate ; HMDB0001429	Phosphoric acid, also known as phosphate or [po(OH)3], belongs to the class of inorganic compounds known as non-metal phosphates. These are inorganic non-metallic compounds containing a phosphate as its largest oxoanion. Phosphoric acid has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, phosphoric acid is primarily located in the cytoplasm. Phosphoric acid exists in all eukaryotes, ranging from yeast to humans. In humans, phosphoric acid is involved in the glutamate metabolism pathway, the glutathione metabolism pathway, the glycerol phosphate shuttle pathway, and the purine metabolism pathway. Phosphoric acid is also involved in several metabolic disorders, some of which include the hypophosphatasia pathway, the leigh syndrome pathway, creatine deficiency, guanidinoacetate methyltransferase deficiency, and L-arginine:glycine amidinotransferase deficiency. Phosphoric acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001429

Phosphorylcholine ; HMDB0001565	Phosphorylcholine, also known as choline phosphate or CHOP, belongs to the class of organic compounds known as phosphocholines. Phosphocholines are compounds containing a [2-(trimethylazaniumyl)ethoxy]phosphonic acid or derivative. Phosphorylcholine is slightly soluble (in water) and a moderately acidic compound (based on its pKa). Phosphorylcholine has been found throughout most human tissues, and has also been detected in most biofluids, including blood, saliva, cerebrospinal fluid, and urine. Within the cell, phosphorylcholine is primarily located in the cytoplasm. Phosphorylcholine exists in all eukaryotes, ranging from yeast to humans. Ceramide (D18:1/18:0) and phosphorylcholine can be biosynthesized from SM(D18:1/18:0) and water; which is mediated by the enzyme ectonucleotide pyrophosphatase/phosphodiesterase family member 7. In humans, phosphorylcholine is involved in phosphatidylcholine biosynthesis PC(18:1(9Z)/14:1(9Z)) pathway, phosphatidylcholine biosynthesis PC(22:4(7Z,10Z,13Z,16Z)/14:0) pathway, phosphatidylcholine biosynthesis PC(22:0/16:0) pathway, and phosphatidylcholine biosynthesis PC(22:5(4Z,7Z,10Z,13Z,16Z)/20:4(5Z,8Z,11Z,14Z)) pathway. Phosphorylcholine is also involved in a few metabolic disorders, which include the fabry disease pathway, the gaucher disease pathway, and the krabbe disease pathway. Outside of the human body, phosphorylcholine can be found in a number of food items such as fireweed, swede, french plantain, and giant butterbur. This makes phosphorylcholine a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0001565

Phosphorylcholine ; HMDB01565	Phosphorylcholine, also known as choline phosphate or CHOP, belongs to the class of organic compounds known as phosphocholines. Phosphocholines are compounds containing a [2-(trimethylazaniumyl)ethoxy]phosphonic acid or derivative. Phosphorylcholine is slightly soluble (in water) and a moderately acidic compound (based on its pKa). Phosphorylcholine has been found throughout most human tissues, and has also been detected in most biofluids, including blood, saliva, cerebrospinal fluid, and urine. Within the cell, phosphorylcholine is primarily located in the cytoplasm. Phosphorylcholine exists in all eukaryotes, ranging from yeast to humans. Ceramide (D18:1/18:0) and phosphorylcholine can be biosynthesized from SM(D18:1/18:0) and water; which is mediated by the enzyme ectonucleotide pyrophosphatase/phosphodiesterase family member 7. In humans, phosphorylcholine is involved in phosphatidylcholine biosynthesis PC(18:1(9Z)/14:1(9Z)) pathway, phosphatidylcholine biosynthesis PC(22:4(7Z,10Z,13Z,16Z)/14:0) pathway, phosphatidylcholine biosynthesis PC(22:0/16:0) pathway, and phosphatidylcholine biosynthesis PC(22:5(4Z,7Z,10Z,13Z,16Z)/20:4(5Z,8Z,11Z,14Z)) pathway. Phosphorylcholine is also involved in a few metabolic disorders, which include the fabry disease pathway, the gaucher disease pathway, and the krabbe disease pathway. Outside of the human body, phosphorylcholine can be found in a number of food items such as fireweed, swede, french plantain, and giant butterbur. This makes phosphorylcholine a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0001565

Phytanic acid ; HMDB0000801	Phytanic acid, also known as phytanate or acid, phytanic, belongs to the class of organic compounds known as acyclic diterpenoids. These are diterpenoids (compounds made of four consecutive isoprene units) that do not contain a cycle. Phytanic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Phytanic acid has been found in human prostate and liver tissues, and has also been detected in multiple biofluids, such as feces and blood. Within the cell, phytanic acid is primarily located in the cytoplasm, membrane (predicted from logP), peroxisome and myelin sheath. In humans, phytanic acid is involved in the oxidation OF branched chain fatty acids pathway and the phytanic Acid peroxisomal oxidation pathway. Phytanic acid is also involved in the metabolic disorder called the refsum disease pathway. Phytanic acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000801
Phytanic acid ; HMDB00801	Phytanic acid, also known as phytanate or acid, phytanic, belongs to the class of organic compounds known as acyclic diterpenoids. These are diterpenoids (compounds made of four consecutive isoprene units) that do not contain a cycle. Phytanic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Phytanic acid has been found in human prostate and liver tissues, and has also been detected in multiple biofluids, such as feces and blood. Within the cell, phytanic acid is primarily located in the cytoplasm, membrane (predicted from logP), peroxisome and myelin sheath. In humans, phytanic acid is involved in the oxidation OF branched chain fatty acids pathway and the phytanic Acid peroxisomal oxidation pathway. Phytanic acid is also involved in the metabolic disorder called the refsum disease pathway. Phytanic acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000801

Phytosphingosine ; HMDB0004610	Phytosphingosine belongs to the class of organic compounds known as 1,3-aminoalcohols. These are organic compounds containing an alkyl chain with an amine group bound to the C1 atom and an alcohol group bound to the C3 atom. Thus, phytosphingosine is considered to be a sphingoid base lipid molecule. Phytosphingosine exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Phytosphingosine has been found in human epidermis and endocrine gland tissues. Within the cell, phytosphingosine is primarily located in the membrane (predicted from logP). Phytosphingosine exists in all eukaryotes, ranging from yeast to humans. Phytosphingosine participates in a number of enzymatic reactions. In particular, Phytosphingosine and ferricytochrome c can be biosynthesized from sphinganine and ferrocytochrome through its interaction with the enzyme sphinganine C4-monooxygenase. Furthermore, Phytosphingosine can be biosynthesized from sphinganine; which is catalyzed by the enzyme dihydrosphingosine C-4 hydroxylase. Furthermore, Phytosphingosine can be biosynthesized from sphinganine; which is catalyzed by the enzyme dihydrosphingosine C-4 hydroxylase. Finally, Phytosphingosine and docosanoyl-CoA can be converted into N-docosanoyl-4-hydroxysphinganine; which is catalyzed by the enzyme ceramide synthase.	http://www.hmdb.ca/metabolites/HMDB0004610

Phytosphingosine ; HMDB04610	Phytosphingosine belongs to the class of organic compounds known as 1,3-aminoalcohols. These are organic compounds containing an alkyl chain with an amine group bound to the C1 atom and an alcohol group bound to the C3 atom. Thus, phytosphingosine is considered to be a sphingoid base lipid molecule. Phytosphingosine exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Phytosphingosine has been found in human epidermis and endocrine gland tissues. Within the cell, phytosphingosine is primarily located in the membrane (predicted from logP). Phytosphingosine exists in all eukaryotes, ranging from yeast to humans. Phytosphingosine participates in a number of enzymatic reactions. In particular, Phytosphingosine and ferricytochrome c can be biosynthesized from sphinganine and ferrocytochrome through its interaction with the enzyme sphinganine C4-monooxygenase. Furthermore, Phytosphingosine can be biosynthesized from sphinganine; which is catalyzed by the enzyme dihydrosphingosine C-4 hydroxylase. Furthermore, Phytosphingosine can be biosynthesized from sphinganine; which is catalyzed by the enzyme dihydrosphingosine C-4 hydroxylase. Finally, Phytosphingosine and docosanoyl-CoA can be converted into N-docosanoyl-4-hydroxysphinganine; which is catalyzed by the enzyme ceramide synthase.	http://www.hmdb.ca/metabolites/HMDB0004610

Picolinic acid ; HMDB0002243	Picolinic acid, also known as a-picolinate or 2-carboxypyridine, belongs to the class of organic compounds known as pyridinecarboxylic acids. Pyridinecarboxylic acids are compounds containing a pyridine ring bearing a carboxylic acid group. Picolinic acid exists as a solid, soluble (in water), and an extremely strong acidic compound (based on its pKa). Picolinic acid has been found in human prostate tissue, and has also been primarily detected in saliva, urine, blood, and cerebrospinal fluid. Picolinic acid is also a parent compound for other transformation products, including but not limited to, 5-(3-carboxy-3-oxopropenyl)-4,6-dihydroxypyridine-2-carboxylic acid, 5-(3'-carboxy-3'-oxopropenyl)-4,6-dihydroxypicolinic acid, and 5-(2'-formylethyl)-4,6-dihydroxypicolinic acid.	http://www.hmdb.ca/metabolites/HMDB0002243

Pipecolic acid ; HMDB0000070	DL-Pipecolic acid, also known as pipecolinate or homoproline, belongs to the class of organic compounds known as alpha amino acids. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon). DL-Pipecolic acid exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). DL-Pipecolic acid has been found in human prostate and liver tissues, and has also been detected in most biofluids, including feces, saliva, cerebrospinal fluid, and blood. Within the cell, DL-pipecolic acid is primarily located in the cytoplasm. DL-Pipecolic acid exists in all eukaryotes, ranging from yeast to humans. DL-Pipecolic acid can be converted into 5-hydroxypipecolic acid. Outside of the human body, DL-pipecolic acid can be found in a number of food items such as ginger, french plantain, common pea, and carrot. This makes DL-pipecolic acid a potential biomarker for the consumption of these food products. DL-Pipecolic acid has been found to be associated with several diseases known as hyperpipecolatemia, malaria, and pseudoneonatal adrenoleukodystrophy; dl-pipecolic acid has also been linked to several inborn metabolic disorders including peroxisomal biogenesis defect and adrenoleukodystrophy.	http://www.hmdb.ca/metabolites/HMDB0000070

Piperine ; HMDB0029377	Piperine, also known as fema 2909, belongs to the class of organic compounds known as alkaloids and derivatives. These are naturally occurring chemical compounds that contain mostly basic nitrogen atoms. This group also includes some related compounds with neutral and even weakly acidic properties. Also some synthetic compounds of similar structure are attributed to alkaloids. In addition to carbon, hydrogen and nitrogen, alkaloids may also contain oxygen, sulfur and more rarely other elements such as chlorine, bromine, and phosphorus. Piperine exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Piperine has been detected in multiple biofluids, such as feces and blood. Within the cell, piperine is primarily located in the membrane (predicted from logP). Piperine can be biosynthesized from (e,e)-piperic acid. Outside of the human body, piperine can be found in herbs and spices and pepper (spice). This makes piperine a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0029377

Piperine ; HMDB29377	Piperine, also known as fema 2909, belongs to the class of organic compounds known as alkaloids and derivatives. These are naturally occurring chemical compounds that contain mostly basic nitrogen atoms. This group also includes some related compounds with neutral and even weakly acidic properties. Also some synthetic compounds of similar structure are attributed to alkaloids. In addition to carbon, hydrogen and nitrogen, alkaloids may also contain oxygen, sulfur and more rarely other elements such as chlorine, bromine, and phosphorus. Piperine exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Piperine has been detected in multiple biofluids, such as feces and blood. Within the cell, piperine is primarily located in the membrane (predicted from logP). Piperine can be biosynthesized from (e,e)-piperic acid. Outside of the human body, piperine can be found in herbs and spices and pepper (spice). This makes piperine a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0029377
Pregnanediol-3-glucuronide ; HMDB0010318	Pregnanediol-3-glucuronide belongs to the class of organic compounds known as steroid glucuronide conjugates. These are sterol lipids containing a glucuronide moiety linked to the steroid skeleton. Pregnanediol-3-glucuronide is considered to be a practically insoluble (in water) and relatively neutral molecule. Pregnanediol-3-glucuronide has been found in human hepatic tissue, liver and kidney tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, pregnanediol-3-glucuronide is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0010318

Pregnenolone sulfate ; HMDB0000774	Pregnenolone sulfate belongs to the class of organic compounds known as sulfated steroids. These are sterol lipids containing a sulfate group attached to the steroid skeleton. Pregnenolone sulfate is considered to be a practically insoluble (in water) and relatively neutral molecule. Pregnenolone sulfate has been found throughout most human tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, pregnenolone sulfate is primarily located in the cytoplasm, membrane (predicted from logP) and endoplasmic reticulum.	http://www.hmdb.ca/metabolites/HMDB0000774
Proline betaine ; HMDB0004827	Proline betaine, also known as stachydrine or dimethylproline, belongs to the class of organic compounds known as proline and derivatives. Proline and derivatives are compounds containing proline or a derivative thereof resulting from reaction of proline at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. Proline betaine is considered to be a practically insoluble (in water) and relatively neutral molecule. Proline betaine has been primarily detected in saliva, feces, urine, and blood. Proline betaine can be biosynthesized from L-prolinium. Outside of the human body, proline betaine can be found in a number of food items such as sweet orange, pummelo, alfalfa, and citrus. This makes proline betaine a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0004827

Proline betaine ; HMDB04827	Proline betaine, also known as stachydrine or dimethylproline, belongs to the class of organic compounds known as proline and derivatives. Proline and derivatives are compounds containing proline or a derivative thereof resulting from reaction of proline at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. Proline betaine is considered to be a practically insoluble (in water) and relatively neutral molecule. Proline betaine has been primarily detected in saliva, feces, urine, and blood. Proline betaine can be biosynthesized from L-prolinium. Outside of the human body, proline betaine can be found in a number of food items such as sweet orange, pummelo, alfalfa, and citrus. This makes proline betaine a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0004827
Prolylglycine ; HMDB0011178	Prolylglycine, also known as pro-gly, belongs to the class of organic compounds known as dipeptides. These are organic compounds containing a sequence of exactly two alpha-amino acids joined by a peptide bond. Prolylglycine is slightly soluble (in water) and a weakly acidic compound (based on its pKa). Prolylglycine has been detected in multiple biofluids, such as urine and blood.	http://www.hmdb.ca/metabolites/HMDB0011178
Prolylhydroxyproline ; HMDB0006695	Prolylhydroxyproline, also known as L-pro-L-hyp, belongs to the class of organic compounds known as dipeptides. These are organic compounds containing a sequence of exactly two alpha-amino acids joined by a peptide bond. Prolylhydroxyproline is soluble (in water) and a weakly acidic compound (based on its pKa). Prolylhydroxyproline has been detected in multiple biofluids, such as urine and cerebrospinal fluid. Prolylhydroxyproline can be biosynthesized from L-proline and trans-4-hydroxy-L-proline.	http://www.hmdb.ca/metabolites/HMDB0006695

Propionic acid ; HMDB0000237	Propionic acid, also known as propionate or acide propanoique, belongs to the class of organic compounds known as carboxylic acids. Carboxylic acids are compounds containing a carboxylic acid group with the formula -C(=O)OH. Propionic acid exists as a liquid, soluble (in water), and a weakly acidic compound (based on its pKa). Propionic acid has been found throughout most human tissues, and has also been detected in most biofluids, including blood, saliva, feces, and urine. Within the cell, propionic acid is primarily located in the cytoplasm and mitochondria. Propionic acid exists in all eukaryotes, ranging from yeast to humans. Propionic acid participates in a number of enzymatic reactions. In particular, Propionic acid can be biosynthesized from propinol adenylate; which is mediated by the enzyme acyl-CoA synthetase short-chain family member 3, mitochondrial. In addition, Propionic acid can be biosynthesized from propinol adenylate through its interaction with the enzyme acetyl-coenzyme A synthetase 2-like, mitochondrial. In humans, propionic acid is involved in the propanoate metabolism pathway and the vitamin K metabolism pathway. Propionic acid is also involved in a few metabolic disorders, which include the malonic aciduria pathway, malonyl-CoA decarboxylase deficiency, and the methylmalonic aciduria due to cobalamin-related disorders pathway. Outside of the human body, propionic acid can be found in a number of food items such as winter squash, chicory, common buckwheat, and greenthread tea. This makes propionic acid a potential biomarker for the consumption of these food products. Propionic acid is a potentially toxic compound. Propionic acid has been found to be associated with several diseases known as irritable bowel syndrome, crohn's disease, and ulcerative colitis; propionic acid has also been linked to several inborn metabolic disorders including celiac disease	http://www.hmdb.ca/metabolites/HMDB0000237

	and propionic acidemia.	

Propionic acid ; HMDB00237	Propionic acid, also known as propionate or acide propanoique, belongs to the class of organic compounds known as carboxylic acids. Carboxylic acids are compounds containing a carboxylic acid group with the formula -C(=O)OH. Propionic acid exists as a liquid, soluble (in water), and a weakly acidic compound (based on its pKa). Propionic acid has been found throughout most human tissues, and has also been detected in most biofluids, including blood, saliva, feces, and urine. Within the cell, propionic acid is primarily located in the cytoplasm and mitochondria. Propionic acid exists in all eukaryotes, ranging from yeast to humans. Propionic acid participates in a number of enzymatic reactions. In particular, Propionic acid can be biosynthesized from propinol adenylate; which is mediated by the enzyme acyl-CoA synthetase short-chain family member 3, mitochondrial. In addition, Propionic acid can be biosynthesized from propinol adenylate through its interaction with the enzyme acetyl-coenzyme A synthetase 2-like, mitochondrial. In humans, propionic acid is involved in the propanoate metabolism pathway and the vitamin K metabolism pathway. Propionic acid is also involved in a few metabolic disorders, which include the malonic aciduria pathway, malonyl-CoA decarboxylase deficiency, and the methylmalonic aciduria due to cobalamin-related disorders pathway. Outside of the human body, propionic acid can be found in a number of food items such as winter squash, chicory, common buckwheat, and greenthread tea. This makes propionic acid a potential biomarker for the consumption of these food products. Propionic acid is a potentially toxic compound. Propionic acid has been found to be associated with several diseases known as irritable bowel syndrome, crohn's disease, and ulcerative colitis; propionic acid has also been linked to several inborn metabolic disorders including celiac disease	http://www.hmdb.ca/metabolites/HMDB0000237

	and propionic acidemia.	
Propionylcarnitine ; HMDB0000824	Propionylcarnitine belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, propionylcarnitine is considered to be a fatty ester lipid molecule. Propionylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. Propionylcarnitine has been detected in most biofluids, including feces, urine, cerebrospinal fluid, and blood. Within the cell, propionylcarnitine is primarily located in the cytoplasm, membrane (predicted from logP), mitochondria and peroxisome. Propionylcarnitine participates in a number of enzymatic reactions. In particular, Propionylcarnitine can be biosynthesized from propionyl-CoA and L-carnitine through its interaction with the enzyme carnitine O-acetyltransferase. In addition, Propionylcarnitine can be biosynthesized from propionyl-CoA and L-carnitine; which is mediated by the enzyme carnitine O-acetyltransferase. In humans, propionylcarnitine is involved in the oxidation OF branched chain fatty acids pathway. Propionylcarnitine has been linked to the inborn metabolic disorders including propionic acidemia.	http://www.hmdb.ca/metabolites/HMDB0000824

Propionylcarnitine ; HMDB00824	Propionylcarnitine belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, propionylcarnitine is considered to be a fatty ester lipid molecule. Propionylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. Propionylcarnitine has been detected in most biofluids, including feces, urine, cerebrospinal fluid, and blood. Within the cell, propionylcarnitine is primarily located in the cytoplasm, membrane (predicted from logP), mitochondria and peroxisome. Propionylcarnitine participates in a number of enzymatic reactions. In particular, Propionylcarnitine can be biosynthesized from propionyl-CoA and L-carnitine through its interaction with the enzyme carnitine O-acetyltransferase. In addition, Propionylcarnitine can be biosynthesized from propionyl-CoA and L-carnitine; which is mediated by the enzyme carnitine O-acetyltransferase. In humans, propionylcarnitine is involved in the oxidation OF branched chain fatty acids pathway. Propionylcarnitine has been linked to the inborn metabolic disorders including propionic acidemia.	http://www.hmdb.ca/metabolites/HMDB0000824

PS(16:0/18:0) ; HMDB0012356	PS(16:0/18:0), also known as pSer(34:0), belongs to the class of organic compounds known as phosphatidylserines. These are glycerophosphoserines in which two fatty acids are bonded to the glycerol moiety through ester linkages. As is the case with diacylglycerols, phosphatidylserines can have many different combinations of fatty acids of varying lengths and saturation attached to the C-1 and C-2 positions. Thus, PS(16:0/18:0) is considered to be a glycerophosphoserine lipid molecule. PS(16:0/18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PS(16:0/18:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PS(16:0/18:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PS(16:0/18:0) exists in all eukaryotes, ranging from yeast to humans. PS(16:0/18:0) participates in a number of enzymatic reactions. In particular, PS(16:0/18:0) can be converted into PE(16:0/18:0); which is catalyzed by the enzyme phosphatidylserine decarboxylase. In addition, Choline and PS(16:0/18:0) can be biosynthesized from PC(16:0/18:0) and L-serine; which is catalyzed by the enzyme phosphatidylserine synthase. In humans, PS(16:0/18:0) is involved in phosphatidylcholine biosynthesis PC(16:0/18:0) pathway and phosphatidylethanolamine biosynthesis pe(16:0/18:0) pathway.	http://www.hmdb.ca/metabolites/HMDB0012356

PS(16:0/18:0) ; HMDB12356	PS(16:0/18:0), also known as pSer(34:0), belongs to the class of organic compounds known as phosphatidylserines. These are glycerophosphoserines in which two fatty acids are bonded to the glycerol moiety through ester linkages. As is the case with diacylglycerols, phosphatidylserines can have many different combinations of fatty acids of varying lengths and saturation attached to the C-1 and C-2 positions. Thus, PS(16:0/18:0) is considered to be a glycerophosphoserine lipid molecule. PS(16:0/18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. PS(16:0/18:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, PS(16:0/18:0) is primarily located in the membrane (predicted from logP) and intracellular membrane. PS(16:0/18:0) exists in all eukaryotes, ranging from yeast to humans. PS(16:0/18:0) participates in a number of enzymatic reactions. In particular, PS(16:0/18:0) can be converted into PE(16:0/18:0); which is catalyzed by the enzyme phosphatidylserine decarboxylase. In addition, Choline and PS(16:0/18:0) can be biosynthesized from PC(16:0/18:0) and L-serine; which is catalyzed by the enzyme phosphatidylserine synthase. In humans, PS(16:0/18:0) is involved in phosphatidylcholine biosynthesis PC(16:0/18:0) pathway and phosphatidylethanolamine biosynthesis pe(16:0/18:0) pathway.	http://www.hmdb.ca/metabolites/HMDB0012356

Pseudouridine ; HMDB0000767	Beta-Pseudouridine, also known as p or 5-ribosyluracil, belongs to the class of organic compounds known as nucleoside and nucleotide analogues. These are analogues of nucleosides and nucleotides. These include phosphonated nucleosides, C-glycosylated nucleoside bases, analogues where the sugar unit is a pyranose, and carbocyclic nucleosides, among others. Beta-Pseudouridine is soluble (in water) and a very weakly acidic compound (based on its pKa). Beta-Pseudouridine has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, Beta-pseudouridine is primarily located in the cytoplasm. Beta-Pseudouridine exists in all eukaryotes, ranging from yeast to humans. Beta-Pseudouridine is also a parent compound for other transformation products, including but not limited to, N(3)-methylpseudouridine 5'-monophosphate, N(1)-methylpseudouridine 5'-monophosphate, and pseudouridine 5'-phosphate. Outside of the human body, Beta-pseudouridine can be found in a number of food items such as lingonberry, lambsquarters, chicory leaves, and persian lime. This makes Beta-pseudouridine a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000767

Pseudouridine ; HMDB00767	Beta-Pseudouridine, also known as p or 5-ribosyluracil, belongs to the class of organic compounds known as nucleoside and nucleotide analogues. These are analogues of nucleosides and nucleotides. These include phosphonated nucleosides, C-glycosylated nucleoside bases, analogues where the sugar unit is a pyranose, and carbocyclic nucleosides, among others. Beta-Pseudouridine is soluble (in water) and a very weakly acidic compound (based on its pKa). Beta-Pseudouridine has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, Beta-pseudouridine is primarily located in the cytoplasm. Beta-Pseudouridine exists in all eukaryotes, ranging from yeast to humans. Beta-Pseudouridine is also a parent compound for other transformation products, including but not limited to, N(3)-methylpseudouridine 5'-monophosphate, N(1)-methylpseudouridine 5'-monophosphate, and pseudouridine 5'-phosphate. Outside of the human body, Beta-pseudouridine can be found in a number of food items such as lingonberry, lambsquarters, chicory leaves, and persian lime. This makes Beta-pseudouridine a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000767

Pterin ; HMDB0000802	Pterin, also known as 4-oxopterin or pteridoxamine, belongs to the class of organic compounds known as pterins and derivatives. These are polycyclic aromatic compounds containing a pterin moiety, which consist of a pteridine ring bearing a ketone and an amine group to form 2-aminopteridin-4(3H)-one. Pterin is slightly soluble (in water) and a very weakly acidic compound (based on its pKa). Pterin has been found in human epidermis and liver tissues, and has also been primarily detected in feces. Within the cell, pterin is primarily located in the cytoplasm. Pterin can be converted into 4-{[(2-amino-4-hydroxypteridin-6-yl)methyl]amino}benzoic acid. Outside of the human body, pterin can be found in soy bean. This makes pterin a potential biomarker for the consumption of this food product.	http://www.hmdb.ca/metabolites/HMDB0000802
Pterin ; HMDB00802	Pterin, also known as 4-oxopterin or pteridoxamine, belongs to the class of organic compounds known as pterins and derivatives. These are polycyclic aromatic compounds containing a pterin moiety, which consist of a pteridine ring bearing a ketone and an amine group to form 2-aminopteridin-4(3H)-one. Pterin is slightly soluble (in water) and a very weakly acidic compound (based on its pKa). Pterin has been found in human epidermis and liver tissues, and has also been primarily detected in feces. Within the cell, pterin is primarily located in the cytoplasm. Pterin can be converted into 4-{[(2-amino-4-hydroxypteridin-6-yl)methyl]amino}benzoic acid. Outside of the human body, pterin can be found in soy bean. This makes pterin a potential biomarker for the consumption of this food product.	http://www.hmdb.ca/metabolites/HMDB0000802

Putrescine ; HMDB0001414	Putrescine, also known as 1,4-butanediamine or 1,4-diaminobutane, belongs to the class of organic compounds known as monoalkylamines. These are organic compounds containing an primary aliphatic amine group. Putrescine exists as a solid, soluble (in water), and a very strong basic compound (based on its pKa). Putrescine has been found throughout most human tissues, and has also been detected in most biofluids, including cerebrospinal fluid, saliva, blood, and urine. Within the cell, putrescine is primarily located in the mitochondria and cytoplasm. Putrescine exists in all eukaryotes, ranging from yeast to humans. S-Adenosylmethioninamine and putrescine can be converted into 5'-methylthioadenosine and spermidine through the action of the enzyme spermidine synthase. In humans, putrescine is involved in the methionine metabolism pathway and spermidine and spermine biosynthesis pathway. Putrescine is also involved in several metabolic disorders, some of which include S-adenosylhomocysteine (sah) hydrolase deficiency, methylenetetrahydrofolate reductase deficiency (MTHFRD), cystathionine Beta-synthase deficiency, and the hypermethioninemia pathway. Outside of the human body, putrescine can be found in french plantain. This makes putrescine a potential biomarker for the consumption of this food product. Putrescine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001414

Putrescine ; HMDB01414	Putrescine, also known as 1,4-butanediamine or 1,4-diaminobutane, belongs to the class of organic compounds known as monoalkylamines. These are organic compounds containing an primary aliphatic amine group. Putrescine exists as a solid, soluble (in water), and a very strong basic compound (based on its pKa). Putrescine has been found throughout most human tissues, and has also been detected in most biofluids, including cerebrospinal fluid, saliva, blood, and urine. Within the cell, putrescine is primarily located in the mitochondria and cytoplasm. Putrescine exists in all eukaryotes, ranging from yeast to humans. S-Adenosylmethioninamine and putrescine can be converted into 5'-methylthioadenosine and spermidine through the action of the enzyme spermidine synthase. In humans, putrescine is involved in the methionine metabolism pathway and spermidine and spermine biosynthesis pathway. Putrescine is also involved in several metabolic disorders, some of which include S-adenosylhomocysteine (sah) hydrolase deficiency, methylenetetrahydrofolate reductase deficiency (MTHFRD), cystathionine Beta-synthase deficiency, and the hypermethioninemia pathway. Outside of the human body, putrescine can be found in french plantain. This makes putrescine a potential biomarker for the consumption of this food product. Putrescine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001414

Pyridoxal ; HMDB0001545	Pyridoxal, also known as pyridoxaldehyde, belongs to the class of organic compounds known as pyridoxals and derivatives. Pyridoxals and derivatives are compounds containing a pyridoxal moiety, which consists of a pyridine ring substituted at positions 2,3,4, and 5 by a methyl group, a hydroxyl group, a carbaldehyde group, and a hydroxymethyl group, respectively. Pyridoxal exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Pyridoxal has been found in human kidney and placenta tissues, and has also been primarily detected in blood. Within the cell, pyridoxal is primarily located in the cytoplasm. Pyridoxal exists in all eukaryotes, ranging from yeast to humans. In humans, pyridoxal is involved in the vitamin B6 metabolism pathway and the valine, leucine and isoleucine degradation pathway. Pyridoxal is also involved in several metabolic disorders, some of which include methylmalonate semialdehyde dehydrogenase deficiency, the hypophosphatasia pathway, the isovaleric aciduria pathway, and isobutyryl-CoA dehydrogenase deficiency.	http://www.hmdb.ca/metabolites/HMDB0001545

Pyridoxamine ; HMDB0001431	Pyridoxamine, also known as PM, belongs to the class of organic compounds known as pyridoxamine 5'-phosphates. These are heterocyclic aromatic compounds containing a pyridoxamine that carries a phosphate group at the 5'-position. Pyridoxamine is soluble (in water) and a very weakly acidic compound (based on its pKa). Pyridoxamine has been found in human prostate tissue, and has also been primarily detected in blood. Pyridoxamine exists in all eukaryotes, ranging from yeast to humans. Pyridoxamine participates in a number of enzymatic reactions. In particular, Pyridoxamine can be converted into pyridoxal; which is mediated by the enzyme pyridoxine-5'-phosphate oxidase. Furthermore, Pyridoxamine can be converted into pyridoxamine 5'-phosphate through the action of the enzyme pyridoxal kinase. Finally, Pyridoxamine can be converted into pyridoxamine 5'-phosphate; which is mediated by the enzyme pyridoxal kinase. In humans, pyridoxamine is involved in the vitamin B6 metabolism pathway. Pyridoxamine is also involved in the metabolic disorder called the hypophosphatasia pathway. Outside of the human body, pyridoxamine can be found in a number of food items such as other bread, cloudberry, flaxseed, and jicama. This makes pyridoxamine a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0001431

Pyridoxamine ; HMDB01431	Pyridoxamine, also known as PM, belongs to the class of organic compounds known as pyridoxamine 5'-phosphates. These are heterocyclic aromatic compounds containing a pyridoxamine that carries a phosphate group at the 5'-position. Pyridoxamine is soluble (in water) and a very weakly acidic compound (based on its pKa). Pyridoxamine has been found in human prostate tissue, and has also been primarily detected in blood. Pyridoxamine exists in all eukaryotes, ranging from yeast to humans. Pyridoxamine participates in a number of enzymatic reactions. In particular, Pyridoxamine can be converted into pyridoxal; which is mediated by the enzyme pyridoxine-5'-phosphate oxidase. Furthermore, Pyridoxamine can be converted into pyridoxamine 5'-phosphate through the action of the enzyme pyridoxal kinase. Finally, Pyridoxamine can be converted into pyridoxamine 5'-phosphate; which is mediated by the enzyme pyridoxal kinase. In humans, pyridoxamine is involved in the vitamin B6 metabolism pathway. Pyridoxamine is also involved in the metabolic disorder called the hypophosphatasia pathway. Outside of the human body, pyridoxamine can be found in a number of food items such as other bread, cloudberry, flaxseed, and jicama. This makes pyridoxamine a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0001431

Pyridoxine ; HMDB0000239	Pyridoxine, also known as pyridoxol or vitamin B6, belongs to the class of organic compounds known as pyridoxines. These are pyridoxal derivatives in which the carbaldehyde group at position 2 of the pyridoxal moiety is replaced by a hydroxymethyl group. Pyridoxine exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Pyridoxine has been found in human liver tissue, and has also been detected in multiple biofluids, such as feces, urine, and blood. Pyridoxine exists in all eukaryotes, ranging from yeast to humans. Pyridoxine participates in a number of enzymatic reactions. In particular, Pyridoxine can be converted into pyridoxal through the action of the enzyme pyridoxine-5'-phosphate oxidase. Furthermore, Pyridoxine can be converted into pyridoxine 5'-phosphate; which is catalyzed by the enzyme pyridoxal kinase. Finally, Pyridoxine can be converted into pyridoxine 5'-phosphate; which is mediated by the enzyme pyridoxal kinase. In humans, pyridoxine is involved in the vitamin B6 metabolism pathway. Pyridoxine is also involved in the metabolic disorder called the hypophosphatasia pathway. Pyridoxine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000239

Pyridoxine ; HMDB00239	Pyridoxine, also known as pyridoxol or vitamin B6, belongs to the class of organic compounds known as pyridoxines. These are pyridoxal derivatives in which the carbaldehyde group at position 2 of the pyridoxal moiety is replaced by a hydroxymethyl group. Pyridoxine exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Pyridoxine has been found in human liver tissue, and has also been detected in multiple biofluids, such as feces, urine, and blood. Pyridoxine exists in all eukaryotes, ranging from yeast to humans. Pyridoxine participates in a number of enzymatic reactions. In particular, Pyridoxine can be converted into pyridoxal through the action of the enzyme pyridoxine-5'-phosphate oxidase. Furthermore, Pyridoxine can be converted into pyridoxine 5'-phosphate; which is catalyzed by the enzyme pyridoxal kinase. Finally, Pyridoxine can be converted into pyridoxine 5'-phosphate; which is mediated by the enzyme pyridoxal kinase. In humans, pyridoxine is involved in the vitamin B6 metabolism pathway. Pyridoxine is also involved in the metabolic disorder called the hypophosphatasia pathway. Pyridoxine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000239
Pyrocatechol sulfate ; HMDB0059724	Catechol 1-O-sulphate, also known as catechol monosulfate or catechol sulfuric acid, belongs to the class of organic compounds known as phenylsulfates. Phenylsulfates are compounds containing a sulfuric acid group conjugated to a phenyl group. Catechol 1-O-sulphate is slightly soluble (in water) and an extremely strong acidic compound (based on its pKa). Catechol 1-O-sulphate can be biosynthesized from catechol.	http://www.hmdb.ca/metabolites/HMDB0059724

Pyroglutamic acid ; HMDB0000267	Pyroglutamic acid, also known as pyroglutamate or pidolic acid, belongs to the class of organic compounds known as alpha amino acids and derivatives. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon), or a derivative thereof. Pyroglutamic acid is soluble (in water) and a weakly acidic compound (based on its pKa). Pyroglutamic acid has been found in human brain, prostate and skin tissues, and has also been detected in most biofluids, including cerebrospinal fluid, feces, saliva, and blood. Within the cell, pyroglutamic acid is primarily located in the cytoplasm. Pyroglutamic acid exists in all eukaryotes, ranging from yeast to humans. Pyroglutamic acid participates in a number of enzymatic reactions. In particular, Pyroglutamic acid can be converted into L-glutamic acid; which is catalyzed by the enzyme 5-oxoprolinase. In addition, L-Cysteine and pyroglutamic acid can be biosynthesized from Gamma-glutamylcysteine; which is mediated by the enzyme Gamma-glutamylcyclotransferase. In humans, pyroglutamic acid is involved in the glutathione metabolism pathway. Pyroglutamic acid is also involved in several metabolic disorders, some of which include glutathione synthetase deficiency, Gamma-glutamyltransferase deficiency, Gamma-glutamyl-transpeptidase deficiency, and 5-oxoprolinase deficiency. Outside of the human body, pyroglutamic acid can be found in a number of food items such as brussel sprouts, thistle, pear, and moth bean. This makes pyroglutamic acid a potential biomarker for the consumption of these food products. Pyroglutamic acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000267

Pyruvic acid ; HMDB0000243	Pyruvic acid, also known as 2-oxopropanoate or pyroracemic acid, belongs to the class of organic compounds known as alpha-keto acids and derivatives. These are organic compounds containing an aldehyde substituted with a keto group on the adjacent carbon. Pyruvic acid is a drug which is used for nutritional supplementation, also for treating dietary shortage or imbalance. Pyruvic acid exists as a liquid, soluble (in water), and a moderately acidic compound (based on its pKa). Pyruvic acid has been found throughout most human tissues, and has also been detected in most biofluids, including saliva, blood, sweat, and breast milk. Within the cell, pyruvic acid is primarily located in the mitochondria, peroxisome and cytoplasm. Pyruvic acid exists in all eukaryotes, ranging from yeast to humans. Pyruvic acid participates in a number of enzymatic reactions. In particular, L-Glutamic acid and pyruvic acid can be biosynthesized from L-alanine and oxoglutaric acid through the action of the enzyme alanine aminotransferase 1. Furthermore, Pyruvic acid can be converted into oxalacetic acid; which is mediated by the enzyme pyruvate carboxylase, mitochondrial. Furthermore, Pyruvic acid can be biosynthesized from pyruvaldehyde through the action of the enzyme aldehyde dehydrogenase, mitochondrial. Finally, Pyruvic acid and L-serine can be converted into hydroxypyruvic acid and L-alanine; which is catalyzed by the enzyme serine--pyruvate aminotransferase. In humans, pyruvic acid is involved in the gluconeogenesis pathway, the pyruvate metabolism pathway, the alanine metabolism pathway, and the oncogenic action OF fumarate pathway. Pyruvic acid is also involved in several metabolic disorders, some of which include the lactic acidemia pathway, 4-hydroxybutyric aciduria/succinic semialdehyde dehydrogenase deficiency, the sialuria or french type sialuria pathway, and the glycogenosis, type vii. tarui	http://www.hmdb.ca/metabolites/HMDB0000243

	disease pathway. Outside of the human body, pyruvic acid can be found in a number of food items such as calabash, squashberry, lambsquarters, and peach (var.). This makes pyruvic acid a potential biomarker for the consumption of these food products. Pyruvic acid is a potentially toxic compound.	

Pyruvic acid ; HMDB00243	Pyruvic acid, also known as 2-oxopropanoate or pyroracemic acid, belongs to the class of organic compounds known as alpha-keto acids and derivatives. These are organic compounds containing an aldehyde substituted with a keto group on the adjacent carbon. Pyruvic acid is a drug which is used for nutritional supplementation, also for treating dietary shortage or imbalance. Pyruvic acid exists as a liquid, soluble (in water), and a moderately acidic compound (based on its pKa). Pyruvic acid has been found throughout most human tissues, and has also been detected in most biofluids, including saliva, blood, sweat, and breast milk. Within the cell, pyruvic acid is primarily located in the mitochondria, peroxisome and cytoplasm. Pyruvic acid exists in all eukaryotes, ranging from yeast to humans. Pyruvic acid participates in a number of enzymatic reactions. In particular, L-Glutamic acid and pyruvic acid can be biosynthesized from L-alanine and oxoglutaric acid through the action of the enzyme alanine aminotransferase 1. Furthermore, Pyruvic acid can be converted into oxalacetic acid; which is mediated by the enzyme pyruvate carboxylase, mitochondrial. Furthermore, Pyruvic acid can be biosynthesized from pyruvaldehyde through the action of the enzyme aldehyde dehydrogenase, mitochondrial. Finally, Pyruvic acid and L-serine can be converted into hydroxypyruvic acid and L-alanine; which is catalyzed by the enzyme serine--pyruvate aminotransferase. In humans, pyruvic acid is involved in the gluconeogenesis pathway, the pyruvate metabolism pathway, the alanine metabolism pathway, and the oncogenic action OF fumarate pathway. Pyruvic acid is also involved in several metabolic disorders, some of which include the lactic acidemia pathway, 4-hydroxybutyric aciduria/succinic semialdehyde dehydrogenase deficiency, the sialuria or french type sialuria pathway, and the glycogenosis, type vii. tarui	http://www.hmdb.ca/metabolites/HMDB0000243

	disease pathway. Outside of the human body, pyruvic acid can be found in a number of food items such as calabash, squashberry, lambsquarters, and peach (var.). This makes pyruvic acid a potential biomarker for the consumption of these food products. Pyruvic acid is a potentially toxic compound.	
Quinaldine ; HMDB0042004	Quinaldine or 2-methylquinoline is a simple derivative of a heterocyclic compound quinoline.	http://www.hmdb.ca/metabolites/HMDB0042004
Quinic acid ; HMDB0003072	Quinic acid, also known as quinate or chinate, belongs to the class of organic compounds known as quinic acids and derivatives. Quinic acids and derivatives are compounds containing a quinic acid moiety (or a derivative thereof), which is a cyclitol made up of a cyclohexane ring that bears four hydroxyl groups at positions 1,3.4, and 5, as well as a carboxylic acid at position 1. Quinic acid is soluble (in water) and a weakly acidic compound (based on its pKa). Quinic acid has been found in human spleen tissue, and has also been primarily detected in urine, feces, saliva, and blood. Within the cell, quinic acid is primarily located in the cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0003072
Quinic acid ; HMDB03072	Quinic acid, also known as quinate or chinate, belongs to the class of organic compounds known as quinic acids and derivatives. Quinic acids and derivatives are compounds containing a quinic acid moiety (or a derivative thereof), which is a cyclitol made up of a cyclohexane ring that bears four hydroxyl groups at positions 1,3.4, and 5, as well as a carboxylic acid at position 1. Quinic acid is soluble (in water) and a weakly acidic compound (based on its pKa). Quinic acid has been found in human spleen tissue, and has also been primarily detected in urine, feces, saliva, and blood. Within the cell, quinic acid is primarily located in the cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0003072

Quinine ; HMDB0014611	Quinine, also known as chinin or (8S,9R)-quinine, belongs to the class of organic compounds known as cinchona alkaloids. These are alkaloids structurally characterized by the presence of the cinchonan skeleton, which consists of a quinoline linked to an azabicyclo[2.2.2]octane moiety. Quinine is a drug which is used for the treatment of malaria and leg cramps. Quinine exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Quinine has been detected in multiple biofluids, such as urine and blood. Within the cell, quinine is primarily located in the membrane (predicted from logP). Quinine participates in a number of enzymatic reactions. In particular, quinine can be biosynthesized from (8S)-cinchonan. Quinine can also be converted into 3-hydroxyquinine. Quinine has a bitter taste. Quinine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0014611
Quinine ; HMDB14611	Quinine, also known as chinin or (8S,9R)-quinine, belongs to the class of organic compounds known as cinchona alkaloids. These are alkaloids structurally characterized by the presence of the cinchonan skeleton, which consists of a quinoline linked to an azabicyclo[2.2.2]octane moiety. Quinine is a drug which is used for the treatment of malaria and leg cramps. Quinine exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Quinine has been detected in multiple biofluids, such as urine and blood. Within the cell, quinine is primarily located in the membrane (predicted from logP). Quinine participates in a number of enzymatic reactions. In particular, quinine can be biosynthesized from (8S)-cinchonan. Quinine can also be converted into 3-hydroxyquinine. Quinine has a bitter taste. Quinine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0014611

Quinolinic acid ; HMDB0000232	Quinolinic acid, also known as quinolinate, belongs to the class of organic compounds known as pyridinecarboxylic acids. Pyridinecarboxylic acids are compounds containing a pyridine ring bearing a carboxylic acid group. Quinolinic acid exists as a solid, slightly soluble (in water), and an extremely strong acidic compound (based on its pKa). Quinolinic acid has been found in human brain, prostate and spleen tissues, and has also been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid. Within the cell, quinolinic acid is primarily located in the cytoplasm. Quinolinic acid exists in all eukaryotes, ranging from yeast to humans. Quinolinic acid and phosphoribosyl pyrophosphate can be biosynthesized from nicotinic acid mononucleotide through its interaction with the enzyme nicotinate-nucleotide pyrophosphorylase [carboxylating]. In humans, quinolinic acid is involved in the tryptophan metabolism pathway and the nicotinate and nicotinamide metabolism pathway. Outside of the human body, quinolinic acid can be found in a number of food items such as saffron, wild rice, angelica, and garden tomato. This makes quinolinic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000232

Quinolinic acid ; HMDB00232	Quinolinic acid, also known as quinolinate, belongs to the class of organic compounds known as pyridinecarboxylic acids. Pyridinecarboxylic acids are compounds containing a pyridine ring bearing a carboxylic acid group. Quinolinic acid exists as a solid, slightly soluble (in water), and an extremely strong acidic compound (based on its pKa). Quinolinic acid has been found in human brain, prostate and spleen tissues, and has also been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid. Within the cell, quinolinic acid is primarily located in the cytoplasm. Quinolinic acid exists in all eukaryotes, ranging from yeast to humans. Quinolinic acid and phosphoribosyl pyrophosphate can be biosynthesized from nicotinic acid mononucleotide through its interaction with the enzyme nicotinate-nucleotide pyrophosphorylase [carboxylating]. In humans, quinolinic acid is involved in the tryptophan metabolism pathway and the nicotinate and nicotinamide metabolism pathway. Outside of the human body, quinolinic acid can be found in a number of food items such as saffron, wild rice, angelica, and garden tomato. This makes quinolinic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000232

Ribitol ; HMDB0000508	Ribitol, also known as adonitol or pentitol, belongs to the class of organic compounds known as sugar alcohols. These are hydrogenated forms of carbohydrate in which the carbonyl group (aldehyde or ketone, reducing sugar) has been reduced to a primary or secondary hydroxyl group. Ribitol is soluble (in water) and a very weakly acidic compound (based on its pKa). Ribitol has been found in human prostate tissue, and has also been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, ribitol is primarily located in the cytoplasm. Ribitol is also a parent compound for other transformation products, including but not limited to, 5-amino-6-(D-ribitylamino)uracil, 1-deoxy-1-{[2,6-dihydroxy-5-(5-phosphonopentyl)pyrimidin-4-yl]amino}-D-ribitol, and 1-deoxy-1-{[2,6-dioxo-5-(5-phosphonopentyl)-1,2,3,6-tetrahydropyrimidin-4-yl]amino}-D-ribitol. Ribitol has been found to be associated with the diseases known as alzheimer's disease; ribitol has also been linked to the inborn metabolic disorders including ribose-5-phosphate isomerase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000508

Ribitol ; HMDB00508	Ribitol, also known as adonitol or pentitol, belongs to the class of organic compounds known as sugar alcohols. These are hydrogenated forms of carbohydrate in which the carbonyl group (aldehyde or ketone, reducing sugar) has been reduced to a primary or secondary hydroxyl group. Ribitol is soluble (in water) and a very weakly acidic compound (based on its pKa). Ribitol has been found in human prostate tissue, and has also been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, ribitol is primarily located in the cytoplasm. Ribitol is also a parent compound for other transformation products, including but not limited to, 5-amino-6-(D-ribitylamino)uracil, 1-deoxy-1-{[2,6-dihydroxy-5-(5-phosphonopentyl)pyrimidin-4-yl]amino}-D-ribitol, and 1-deoxy-1-{[2,6-dioxo-5-(5-phosphonopentyl)-1,2,3,6-tetrahydropyrimidin-4-yl]amino}-D-ribitol. Ribitol has been found to be associated with the diseases known as alzheimer's disease; ribitol has also been linked to the inborn metabolic disorders including ribose-5-phosphate isomerase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000508
Ribonic acid ; HMDB0000867	Ribonic acid, also known as D-ribonate, belongs to the class of organic compounds known as sugar acids and derivatives. Sugar acids and derivatives are compounds containing a saccharide unit which bears a carboxylic acid group. Ribonic acid is soluble (in water) and a weakly acidic compound (based on its pKa). Ribonic acid has been detected in multiple biofluids, such as feces and blood. Ribonic acid is also a parent compound for other transformation products, including but not limited to, 2-deoxy-D-ribono-1,4-lactone, 2-carboxy-D-arabinitol 1,5-bisphosphate, and 2-carboxy-D-arabinitol 1-phosphate.	http://www.hmdb.ca/metabolites/HMDB0000867

Ribonolactone ; HMDB0001900	Ribonolactone belongs to the class of organic compounds known as pentoses. These are monosaccharides in which the carbohydrate moiety contains five carbon atoms. Ribonolactone exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Ribonolactone has been primarily detected in urine. Within the cell, ribonolactone is primarily located in the cytoplasm. Ribonolactone can be biosynthesized from D-ribonic acid.	http://www.hmdb.ca/metabolites/HMDB0001900
Ribonolactone ; HMDB01900	Ribonolactone belongs to the class of organic compounds known as pentoses. These are monosaccharides in which the carbohydrate moiety contains five carbon atoms. Ribonolactone exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Ribonolactone has been primarily detected in urine. Within the cell, ribonolactone is primarily located in the cytoplasm. Ribonolactone can be biosynthesized from D-ribonic acid.	http://www.hmdb.ca/metabolites/HMDB0001900
Ribothymidine ; HMDB0000884	Ribothymidine, also known as thymine riboside or 5-methyl-uridine, belongs to the class of organic compounds known as pyrimidine nucleosides. Pyrimidine nucleosides are compounds comprising a pyrimidine base attached to a ribosyl or deoxyribosyl moiety. Ribothymidine exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Ribothymidine has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, ribothymidine is primarily located in the cytoplasm. Ribothymidine can be converted into TMP and TDP.	http://www.hmdb.ca/metabolites/HMDB0000884

Ribothymidine ; HMDB00884	Ribothymidine, also known as thymine riboside or 5-methyl-uridine, belongs to the class of organic compounds known as pyrimidine nucleosides. Pyrimidine nucleosides are compounds comprising a pyrimidine base attached to a ribosyl or deoxyribosyl moiety. Ribothymidine exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Ribothymidine has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, ribothymidine is primarily located in the cytoplasm. Ribothymidine can be converted into TMP and TDP.	http://www.hmdb.ca/metabolites/HMDB0000884
S-Allylcysteine ; HMDB0034323	S-Allylcysteine, also known as L-deoxyalliin, belongs to the class of organic compounds known as cysteine and derivatives. Cysteine and derivatives are compounds containing cysteine or a derivative thereof resulting from reaction of cysteine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. S-Allylcysteine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Within the cell, S-allylcysteine is primarily located in the cytoplasm. S-Allylcysteine is a cooked and roasted tasting compound that can be found in garden onion, onion-family vegetables, and soft-necked garlic. This makes S-allylcysteine a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0034323

Saccharin ; HMDB0029723	Saccharin, also known as benzosulfimide or sweeta, belongs to the class of organic compounds known as benzothiazoles. These are organic compounds containing a benzene fused to a thiazole ring (a five-membered ring with four carbon atoms, one nitrogen atom and one sulfur atom). Saccharin exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). Saccharin has been detected in multiple biofluids, such as feces and saliva. Within the cell, saccharin is primarily located in the cytoplasm. Saccharin can be converted into probenazole. Saccharin has a bitter and odorless taste.	http://www.hmdb.ca/metabolites/HMDB0029723
Saccharin ; HMDB29723	Saccharin, also known as benzosulfimide or sweeta, belongs to the class of organic compounds known as benzothiazoles. These are organic compounds containing a benzene fused to a thiazole ring (a five-membered ring with four carbon atoms, one nitrogen atom and one sulfur atom). Saccharin exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). Saccharin has been detected in multiple biofluids, such as feces and saliva. Within the cell, saccharin is primarily located in the cytoplasm. Saccharin can be converted into probenazole. Saccharin has a bitter and odorless taste.	http://www.hmdb.ca/metabolites/HMDB0029723

Salicylic acid ; HMDB0001895	Salicylic acid, also known as ionil or salicylate, belongs to the class of organic compounds known as salicylic acids. These are ortho-hydroxylated benzoic acids. Salicylic acid exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Salicylic acid has been found in human liver and skin tissues, and has also been primarily detected in saliva, feces, urine, and blood. Salicylic acid exists in all eukaryotes, ranging from yeast to humans. In humans, salicylic acid is involved in the salicylic Acid action pathway. Salicylic acid is a faint, nutty, and phenolic tasting compound that can be found in a number of food items such as cardamom, soursop, beer, and breakfast cereal. This makes salicylic acid a potential biomarker for the consumption of these food products. Salicylic acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001895
Salicylic acid ; HMDB01895	Salicylic acid, also known as ionil or salicylate, belongs to the class of organic compounds known as salicylic acids. These are ortho-hydroxylated benzoic acids. Salicylic acid exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Salicylic acid has been found in human liver and skin tissues, and has also been primarily detected in saliva, feces, urine, and blood. Salicylic acid exists in all eukaryotes, ranging from yeast to humans. In humans, salicylic acid is involved in the salicylic Acid action pathway. Salicylic acid is a faint, nutty, and phenolic tasting compound that can be found in a number of food items such as cardamom, soursop, beer, and breakfast cereal. This makes salicylic acid a potential biomarker for the consumption of these food products. Salicylic acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001895

Salicyluric acid ; HMDB0000840	Salicylurate, also known as salicyloylglycine or O-hydroxyhippate, belongs to the class of organic compounds known as hippuric acids. Hippuric acids are compounds containing hippuric acid, which consists of a of a benzoyl group linked to the N-terminal of a glycine. Salicylurate exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Salicylurate has been detected in multiple biofluids, such as urine and blood. Salicylurate exists in all eukaryotes, ranging from yeast to humans. Salicylurate participates in a number of enzymatic reactions. In particular, salicylurate can be biosynthesized from glycine. Salicylurate can also be converted into salicyluric beta-D-glucuronide and 5-aminosalicyluric acid.	http://www.hmdb.ca/metabolites/HMDB0000840
Salicyluric acid ; HMDB00840	Salicylurate, also known as salicyloylglycine or O-hydroxyhippate, belongs to the class of organic compounds known as hippuric acids. Hippuric acids are compounds containing hippuric acid, which consists of a of a benzoyl group linked to the N-terminal of a glycine. Salicylurate exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Salicylurate has been detected in multiple biofluids, such as urine and blood. Salicylurate exists in all eukaryotes, ranging from yeast to humans. Salicylurate participates in a number of enzymatic reactions. In particular, salicylurate can be biosynthesized from glycine. Salicylurate can also be converted into salicyluric beta-D-glucuronide and 5-aminosalicyluric acid.	http://www.hmdb.ca/metabolites/HMDB0000840

Sarcosine ; HMDB0000271	Sarcosine, also known as N-methylglycine or megly, belongs to the class of organic compounds known as alpha amino acids. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon). Sarcosine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Sarcosine has been found in human prostate, muscle and skeletal muscle tissues, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, sarcosine is primarily located in the mitochondria, peroxisome and cytoplasm. Sarcosine participates in a number of enzymatic reactions. In particular, Formaldehyde and sarcosine can be biosynthesized from dimethylglycine through the action of the enzyme dimethylglycine dehydrogenase, mitochondrial. Furthermore, Sarcosine can be converted into formaldehyde and glycine through the action of the enzyme sarcosine dehydrogenase, mitochondrial. Finally, S-Adenosylhomocysteine and sarcosine can be biosynthesized from S-adenosylmethionine and glycine; which is catalyzed by the enzyme dna (cytosine-5)-methyltransferase 1. In humans, sarcosine is involved in the glycine and serine metabolism pathway, the methionine metabolism pathway, and the sarcosine oncometabolite pathway. Sarcosine is also involved in several metabolic disorders, some of which include the hypermethioninemia pathway, S-adenosylhomocysteine (sah) hydrolase deficiency, dihydropyrimidine dehydrogenase deficiency (DHPD), and 3-phosphoglycerate dehydrogenase deficiency. Outside of the human body, sarcosine can be found in peanut. This makes sarcosine a potential biomarker for the consumption of this food product. Sarcosine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000271

Sarcosine ; HMDB00271	Sarcosine, also known as N-methylglycine or megly, belongs to the class of organic compounds known as alpha amino acids. These are amino acids in which the amino group is attached to the carbon atom immediately adjacent to the carboxylate group (alpha carbon). Sarcosine exists as a solid, soluble (in water), and a moderately acidic compound (based on its pKa). Sarcosine has been found in human prostate, muscle and skeletal muscle tissues, and has also been primarily detected in saliva, feces, urine, and blood. Within the cell, sarcosine is primarily located in the mitochondria, peroxisome and cytoplasm. Sarcosine participates in a number of enzymatic reactions. In particular, Formaldehyde and sarcosine can be biosynthesized from dimethylglycine through the action of the enzyme dimethylglycine dehydrogenase, mitochondrial. Furthermore, Sarcosine can be converted into formaldehyde and glycine through the action of the enzyme sarcosine dehydrogenase, mitochondrial. Finally, S-Adenosylhomocysteine and sarcosine can be biosynthesized from S-adenosylmethionine and glycine; which is catalyzed by the enzyme dna (cytosine-5)-methyltransferase 1. In humans, sarcosine is involved in the glycine and serine metabolism pathway, the methionine metabolism pathway, and the sarcosine oncometabolite pathway. Sarcosine is also involved in several metabolic disorders, some of which include the hypermethioninemia pathway, S-adenosylhomocysteine (sah) hydrolase deficiency, dihydropyrimidine dehydrogenase deficiency (DHPD), and 3-phosphoglycerate dehydrogenase deficiency. Outside of the human body, sarcosine can be found in peanut. This makes sarcosine a potential biomarker for the consumption of this food product. Sarcosine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000271

Sebacic acid ; HMDB0000792	Sebacic acid, also known as 1,10-decanedioate or decanedioic acid, belongs to the class of organic compounds known as medium-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 4 and 12 carbon atoms. Sebacic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Sebacic acid has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, sebacic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. Sebacic acid participates in a number of enzymatic reactions. In particular, sebacic acid can be biosynthesized from decane. Sebacic acid can also be converted into 3-hydroxysebacic acid and decanedioyl-CoA. Sebacic acid is a potentially toxic compound. Sebacic acid has been found to be associated with several diseases known as 3-hydroxydicarboxylic aciduria and 3-hydroxy-3-methylglutaryl-CoA synthase deficiency; sebacic acid has also been linked to several inborn metabolic disorders including carnitine-acylcarnitine translocase deficiency and medium chain acyl-CoA dehydrogenase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000792

Sebacic acid ; HMDB00792	Sebacic acid, also known as 1,10-decanedioate or decanedioic acid, belongs to the class of organic compounds known as medium-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 4 and 12 carbon atoms. Sebacic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Sebacic acid has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, sebacic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. Sebacic acid participates in a number of enzymatic reactions. In particular, sebacic acid can be biosynthesized from decane. Sebacic acid can also be converted into 3-hydroxysebacic acid and decanedioyl-CoA. Sebacic acid is a potentially toxic compound. Sebacic acid has been found to be associated with several diseases known as 3-hydroxydicarboxylic aciduria and 3-hydroxy-3-methylglutaryl-CoA synthase deficiency; sebacic acid has also been linked to several inborn metabolic disorders including carnitine-acylcarnitine translocase deficiency and medium chain acyl-CoA dehydrogenase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000792
Sedoheptulose ; HMDB0003219	Sedoheptulose, also known as altro-heptulose or volemulose, belongs to the class of organic compounds known as heptoses. These are monosaccharides in which the sugar unit is a seven-carbon containing moeity. Sedoheptulose is soluble (in water) and a very weakly acidic compound (based on its pKa). Within the cell, sedoheptulose is primarily located in the cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0003219

Serotonin ; HMDB0000259	Serotonin, also known as 5-HT or enteramine, belongs to the class of organic compounds known as serotonins. Serotonins are compounds containing a serotonin moiety, which consists of an indole that bears an aminoethyl a position 2 and a hydroxyl group at position 5. Serotonin is slightly soluble (in water) and a very weakly acidic compound (based on its pKa). Serotonin has been found throughout most human tissues, and has also been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, serotonin is primarily located in the cytoplasm. Serotonin can be converted into serotonin; which is catalyzed by the enzyme sodium-dependent serotonin transporter. In humans, serotonin is involved in the methadone action pathway, the ethylmorphine action pathway, the oxycodone action pathway, and the ropivacaine action pathway. Serotonin is also involved in the metabolic disorder called the dimethylthiambutene action pathway. Serotonin has been found to be associated with several diseases known as schizophrenia, brunner syndrome, hypothyroidism, and parkinson's disease; serotonin has also been linked to the inborn metabolic disorders including aromatic l-amino acid decarboxylase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000259

Serotonin ; HMDB00259	Serotonin, also known as 5-HT or enteramine, belongs to the class of organic compounds known as serotonins. Serotonins are compounds containing a serotonin moiety, which consists of an indole that bears an aminoethyl a position 2 and a hydroxyl group at position 5. Serotonin is slightly soluble (in water) and a very weakly acidic compound (based on its pKa). Serotonin has been found throughout most human tissues, and has also been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, serotonin is primarily located in the cytoplasm. Serotonin can be converted into serotonin; which is catalyzed by the enzyme sodium-dependent serotonin transporter. In humans, serotonin is involved in the methadone action pathway, the ethylmorphine action pathway, the oxycodone action pathway, and the ropivacaine action pathway. Serotonin is also involved in the metabolic disorder called the dimethylthiambutene action pathway. Serotonin has been found to be associated with several diseases known as schizophrenia, brunner syndrome, hypothyroidism, and parkinson's disease; serotonin has also been linked to the inborn metabolic disorders including aromatic l-amino acid decarboxylase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000259

SM(d18:1/14:0) ; HMDB0012097	SM(D18:1/14:0), also known as C14 sphingomyelin or SM(32:1), belongs to the class of organic compounds known as phosphosphingolipids. These are sphingolipids with a structure based on a sphingoid base that is attached to a phosphate head group. They differ from phosphonospingolipids which have a phosphonate head group. Thus, SM(D18:1/14:0) is considered to be a phosphosphingolipid lipid molecule. SM(D18:1/14:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. SM(D18:1/14:0) has been found in human brain tissue, and has also been primarily detected in blood. Within the cell, SM(D18:1/14:0) is primarily located in the membrane (predicted from logP), endosome, myelin sheath and axon. SM(D18:1/14:0) can be biosynthesized from tetradecanoic acid.	http://www.hmdb.ca/metabolites/HMDB0012097
SM(d18:1/14:0) ; HMDB12097	SM(D18:1/14:0), also known as C14 sphingomyelin or SM(32:1), belongs to the class of organic compounds known as phosphosphingolipids. These are sphingolipids with a structure based on a sphingoid base that is attached to a phosphate head group. They differ from phosphonospingolipids which have a phosphonate head group. Thus, SM(D18:1/14:0) is considered to be a phosphosphingolipid lipid molecule. SM(D18:1/14:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. SM(D18:1/14:0) has been found in human brain tissue, and has also been primarily detected in blood. Within the cell, SM(D18:1/14:0) is primarily located in the membrane (predicted from logP), endosome, myelin sheath and axon. SM(D18:1/14:0) can be biosynthesized from tetradecanoic acid.	http://www.hmdb.ca/metabolites/HMDB0012097

SM(d18:1/16:0) ; HMDB0010169	SM(D18:1/16:0), also known as C16 sphingomyelin, belongs to the class of organic compounds known as phosphosphingolipids. These are sphingolipids with a structure based on a sphingoid base that is attached to a phosphate head group. They differ from phosphonospingolipids which have a phosphonate head group. SM(D18:1/16:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. SM(D18:1/16:0) has been found throughout all human tissues, and has also been primarily detected in saliva, urine, blood, and cerebrospinal fluid. Within the cell, SM(D18:1/16:0) is primarily located in the membrane (predicted from logP), endosome, myelin sheath and axon.	http://www.hmdb.ca/metabolites/HMDB0010169
SM(d18:1/16:0) ; HMDB10169	SM(D18:1/16:0), also known as C16 sphingomyelin, belongs to the class of organic compounds known as phosphosphingolipids. These are sphingolipids with a structure based on a sphingoid base that is attached to a phosphate head group. They differ from phosphonospingolipids which have a phosphonate head group. SM(D18:1/16:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. SM(D18:1/16:0) has been found throughout all human tissues, and has also been primarily detected in saliva, urine, blood, and cerebrospinal fluid. Within the cell, SM(D18:1/16:0) is primarily located in the membrane (predicted from logP), endosome, myelin sheath and axon.	http://www.hmdb.ca/metabolites/HMDB0010169

SM(d18:1/18:0) ; HMDB0001348	SM(D18:1/18:0), also known as sphingomyelin, belongs to the class of organic compounds known as phosphosphingolipids. These are sphingolipids with a structure based on a sphingoid base that is attached to a phosphate head group. They differ from phosphonospingolipids which have a phosphonate head group. SM(D18:1/18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. SM(D18:1/18:0) has been found throughout most human tissues, and has also been detected in most biofluids, including blood, saliva, urine, and breast milk. Within the cell, SM(D18:1/18:0) is primarily located in the membrane (predicted from logP), endosome, myelin sheath and axon. SM(D18:1/18:0) participates in a number of enzymatic reactions. In particular, SM(D18:1/18:0) and galactosylglycerol can be biosynthesized from ceramide (D18:1/18:0) and PC(15:0/18:2(9Z,12Z)) through its interaction with the enzyme phosphatidylcholine:ceramide cholinephosphotransferase 1. In addition, SM(D18:1/18:0) and water can be converted into ceramide (D18:1/18:0) and phosphorylcholine; which is catalyzed by the enzyme ectonucleotide pyrophosphatase/phosphodiesterase family member 7. In humans, SM(D18:1/18:0) is involved in the metachromatic leukodystrophy (MLD) pathway, the sphingolipid metabolism pathway, and the globoid cell leukodystrophy pathway. SM(D18:1/18:0) is also involved in a few metabolic disorders, which include the fabry disease pathway, the gaucher disease pathway, and the krabbe disease pathway.	http://www.hmdb.ca/metabolites/HMDB0001348

SM(d18:1/18:0) ; HMDB01348	SM(D18:1/18:0), also known as sphingomyelin, belongs to the class of organic compounds known as phosphosphingolipids. These are sphingolipids with a structure based on a sphingoid base that is attached to a phosphate head group. They differ from phosphonospingolipids which have a phosphonate head group. SM(D18:1/18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. SM(D18:1/18:0) has been found throughout most human tissues, and has also been detected in most biofluids, including blood, saliva, urine, and breast milk. Within the cell, SM(D18:1/18:0) is primarily located in the membrane (predicted from logP), endosome, myelin sheath and axon. SM(D18:1/18:0) participates in a number of enzymatic reactions. In particular, SM(D18:1/18:0) and galactosylglycerol can be biosynthesized from ceramide (D18:1/18:0) and PC(15:0/18:2(9Z,12Z)) through its interaction with the enzyme phosphatidylcholine:ceramide cholinephosphotransferase 1. In addition, SM(D18:1/18:0) and water can be converted into ceramide (D18:1/18:0) and phosphorylcholine; which is catalyzed by the enzyme ectonucleotide pyrophosphatase/phosphodiesterase family member 7. In humans, SM(D18:1/18:0) is involved in the metachromatic leukodystrophy (MLD) pathway, the sphingolipid metabolism pathway, and the globoid cell leukodystrophy pathway. SM(D18:1/18:0) is also involved in a few metabolic disorders, which include the fabry disease pathway, the gaucher disease pathway, and the krabbe disease pathway.	http://www.hmdb.ca/metabolites/HMDB0001348

SM(d18:1/18:1(9Z)) ; HMDB0012101	SM(D18:1/18:1(9Z)), also known as C18:1 sphingomyelin or N-oleoylsphingomyelin, belongs to the class of organic compounds known as phosphosphingolipids. These are sphingolipids with a structure based on a sphingoid base that is attached to a phosphate head group. They differ from phosphonospingolipids which have a phosphonate head group. Thus, SM(D18:1/18:1(9Z)) is considered to be a phosphosphingolipid lipid molecule. SM(D18:1/18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. SM(D18:1/18:1(9Z)) has been found in human brain tissue, and has also been primarily detected in saliva, urine, blood, and cerebrospinal fluid. Within the cell, SM(D18:1/18:1(9Z)) is primarily located in the membrane (predicted from logP), endosome, myelin sheath and axon. SM(D18:1/18:1(9Z)) can be biosynthesized from oleic acid.	http://www.hmdb.ca/metabolites/HMDB0012101
SM(d18:1/18:1(9Z)) ; HMDB12101	SM(D18:1/18:1(9Z)), also known as C18:1 sphingomyelin or N-oleoylsphingomyelin, belongs to the class of organic compounds known as phosphosphingolipids. These are sphingolipids with a structure based on a sphingoid base that is attached to a phosphate head group. They differ from phosphonospingolipids which have a phosphonate head group. Thus, SM(D18:1/18:1(9Z)) is considered to be a phosphosphingolipid lipid molecule. SM(D18:1/18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. SM(D18:1/18:1(9Z)) has been found in human brain tissue, and has also been primarily detected in saliva, urine, blood, and cerebrospinal fluid. Within the cell, SM(D18:1/18:1(9Z)) is primarily located in the membrane (predicted from logP), endosome, myelin sheath and axon. SM(D18:1/18:1(9Z)) can be biosynthesized from oleic acid.	http://www.hmdb.ca/metabolites/HMDB0012101

SM(d18:1/20:0) ; HMDB0012102	SM(D18:1/20:0), also known as C20 sphingomyelin, belongs to the class of organic compounds known as phosphosphingolipids. These are sphingolipids with a structure based on a sphingoid base that is attached to a phosphate head group. They differ from phosphonospingolipids which have a phosphonate head group. Thus, SM(D18:1/20:0) is considered to be a phosphosphingolipid lipid molecule. SM(D18:1/20:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. SM(D18:1/20:0) has been found in human brain tissue, and has also been primarily detected in blood. Within the cell, SM(D18:1/20:0) is primarily located in the membrane (predicted from logP), endosome, myelin sheath and axon. SM(D18:1/20:0) can be biosynthesized from arachidic acid.	http://www.hmdb.ca/metabolites/HMDB0012102
SM(d18:1/20:0) ; HMDB12102	SM(D18:1/20:0), also known as C20 sphingomyelin, belongs to the class of organic compounds known as phosphosphingolipids. These are sphingolipids with a structure based on a sphingoid base that is attached to a phosphate head group. They differ from phosphonospingolipids which have a phosphonate head group. Thus, SM(D18:1/20:0) is considered to be a phosphosphingolipid lipid molecule. SM(D18:1/20:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. SM(D18:1/20:0) has been found in human brain tissue, and has also been primarily detected in blood. Within the cell, SM(D18:1/20:0) is primarily located in the membrane (predicted from logP), endosome, myelin sheath and axon. SM(D18:1/20:0) can be biosynthesized from arachidic acid.	http://www.hmdb.ca/metabolites/HMDB0012102

SM(d18:1/22:0) ; HMDB0012103	SM(D18:1/22:0), also known as C22 sphingomyelin, belongs to the class of organic compounds known as phosphosphingolipids. These are sphingolipids with a structure based on a sphingoid base that is attached to a phosphate head group. They differ from phosphonospingolipids which have a phosphonate head group. Thus, SM(D18:1/22:0) is considered to be a phosphosphingolipid lipid molecule. SM(D18:1/22:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. SM(D18:1/22:0) has been found in human brain tissue, and has also been primarily detected in blood. Within the cell, SM(D18:1/22:0) is primarily located in the membrane (predicted from logP), endosome, myelin sheath and axon. SM(D18:1/22:0) can be biosynthesized from docosanoic acid.	http://www.hmdb.ca/metabolites/HMDB0012103
SM(d18:1/22:0) ; HMDB12103	SM(D18:1/22:0), also known as C22 sphingomyelin, belongs to the class of organic compounds known as phosphosphingolipids. These are sphingolipids with a structure based on a sphingoid base that is attached to a phosphate head group. They differ from phosphonospingolipids which have a phosphonate head group. Thus, SM(D18:1/22:0) is considered to be a phosphosphingolipid lipid molecule. SM(D18:1/22:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. SM(D18:1/22:0) has been found in human brain tissue, and has also been primarily detected in blood. Within the cell, SM(D18:1/22:0) is primarily located in the membrane (predicted from logP), endosome, myelin sheath and axon. SM(D18:1/22:0) can be biosynthesized from docosanoic acid.	http://www.hmdb.ca/metabolites/HMDB0012103

SM(d18:1/22:1(13Z)) ; HMDB0012104	SM(D18:1/22:1), also known as sphingomyelin, belongs to the class of organic compounds known as phosphosphingolipids. These are sphingolipids with a structure based on a sphingoid base that is attached to a phosphate head group. They differ from phosphonospingolipids which have a phosphonate head group. Thus, SM(D18:1/22:1) is considered to be a phosphosphingolipid lipid molecule. SM(D18:1/22:1) is considered to be a practically insoluble (in water) and relatively neutral molecule. SM(D18:1/22:1) has been found in human brain tissue, and has also been primarily detected in blood. Within the cell, SM(D18:1/22:1) is primarily located in the membrane (predicted from logP), endosome, myelin sheath and axon. SM(D18:1/22:1) can be biosynthesized from erucic acid.	http://www.hmdb.ca/metabolites/HMDB0012104
SM(d18:1/22:1(13Z)) ; HMDB12104	SM(D18:1/22:1), also known as sphingomyelin, belongs to the class of organic compounds known as phosphosphingolipids. These are sphingolipids with a structure based on a sphingoid base that is attached to a phosphate head group. They differ from phosphonospingolipids which have a phosphonate head group. Thus, SM(D18:1/22:1) is considered to be a phosphosphingolipid lipid molecule. SM(D18:1/22:1) is considered to be a practically insoluble (in water) and relatively neutral molecule. SM(D18:1/22:1) has been found in human brain tissue, and has also been primarily detected in blood. Within the cell, SM(D18:1/22:1) is primarily located in the membrane (predicted from logP), endosome, myelin sheath and axon. SM(D18:1/22:1) can be biosynthesized from erucic acid.	http://www.hmdb.ca/metabolites/HMDB0012104

SM(d18:1/24:0) ; HMDB0011697	SM(D18:1/24:0) belongs to the class of organic compounds known as phosphosphingolipids. These are sphingolipids with a structure based on a sphingoid base that is attached to a phosphate head group. They differ from phosphonospingolipids which have a phosphonate head group. SM(D18:1/24:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. SM(D18:1/24:0) has been found throughout all human tissues, and has also been primarily detected in saliva, urine, blood, and cerebrospinal fluid. Within the cell, SM(D18:1/24:0) is primarily located in the membrane (predicted from logP), endosome, myelin sheath and axon.	http://www.hmdb.ca/metabolites/HMDB0011697
SM(d18:1/24:0) ; HMDB11697	SM(D18:1/24:0) belongs to the class of organic compounds known as phosphosphingolipids. These are sphingolipids with a structure based on a sphingoid base that is attached to a phosphate head group. They differ from phosphonospingolipids which have a phosphonate head group. SM(D18:1/24:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. SM(D18:1/24:0) has been found throughout all human tissues, and has also been primarily detected in saliva, urine, blood, and cerebrospinal fluid. Within the cell, SM(D18:1/24:0) is primarily located in the membrane (predicted from logP), endosome, myelin sheath and axon.	http://www.hmdb.ca/metabolites/HMDB0011697

SM(d18:1/24:1(15Z)) ; HMDB0012107	SM(D18:1/24:1(15Z)), also known as C24:1 sphingomyelin, belongs to the class of organic compounds known as phosphosphingolipids. These are sphingolipids with a structure based on a sphingoid base that is attached to a phosphate head group. They differ from phosphonospingolipids which have a phosphonate head group. Thus, SM(D18:1/24:1(15Z)) is considered to be a phosphosphingolipid lipid molecule. SM(D18:1/24:1(15Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. SM(D18:1/24:1(15Z)) has been found in human brain tissue, and has also been primarily detected in saliva, urine, blood, and cerebrospinal fluid. Within the cell, SM(D18:1/24:1(15Z)) is primarily located in the membrane (predicted from logP), endosome, myelin sheath and axon. SM(D18:1/24:1(15Z)) can be biosynthesized from (15Z)-tetracosenoic acid.	http://www.hmdb.ca/metabolites/HMDB0012107
SM(d18:1/24:1(15Z)) ; HMDB12107	SM(D18:1/24:1(15Z)), also known as C24:1 sphingomyelin, belongs to the class of organic compounds known as phosphosphingolipids. These are sphingolipids with a structure based on a sphingoid base that is attached to a phosphate head group. They differ from phosphonospingolipids which have a phosphonate head group. Thus, SM(D18:1/24:1(15Z)) is considered to be a phosphosphingolipid lipid molecule. SM(D18:1/24:1(15Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. SM(D18:1/24:1(15Z)) has been found in human brain tissue, and has also been primarily detected in saliva, urine, blood, and cerebrospinal fluid. Within the cell, SM(D18:1/24:1(15Z)) is primarily located in the membrane (predicted from logP), endosome, myelin sheath and axon. SM(D18:1/24:1(15Z)) can be biosynthesized from (15Z)-tetracosenoic acid.	http://www.hmdb.ca/metabolites/HMDB0012107

Solanidine ; HMDB0003236	Solanidine, also known as solatubin or solanid-5-en-3-ol, belongs to the class of organic compounds known as solanidines and derivatives. These are steroids with a structure based on the solanidane skeleton. Solanidane arises from the conversion of a cholestane side-chain into a bicyclic system. Thus, solanidine is considered to be a sterol lipid molecule. Solanidine exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Solanidine has been found in human hepatic tissue tissue, and has also been detected in multiple biofluids, such as feces, blood, and urine. Within the cell, solanidine is primarily located in the membrane (predicted from logP) and cytoplasm. Solanidine can be converted into solanine.	http://www.hmdb.ca/metabolites/HMDB0003236
Solanidine ; HMDB03236	Solanidine, also known as solatubin or solanid-5-en-3-ol, belongs to the class of organic compounds known as solanidines and derivatives. These are steroids with a structure based on the solanidane skeleton. Solanidane arises from the conversion of a cholestane side-chain into a bicyclic system. Thus, solanidine is considered to be a sterol lipid molecule. Solanidine exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Solanidine has been found in human hepatic tissue tissue, and has also been detected in multiple biofluids, such as feces, blood, and urine. Within the cell, solanidine is primarily located in the membrane (predicted from logP) and cytoplasm. Solanidine can be converted into solanine.	http://www.hmdb.ca/metabolites/HMDB0003236

Sorbitol ; HMDB0000247	D-Glucitol, also known as D-sorbitol or neosorb, belongs to the class of organic compounds known as sugar alcohols. These are hydrogenated forms of carbohydrate in which the carbonyl group (aldehyde or ketone, reducing sugar) has been reduced to a primary or secondary hydroxyl group. D-Glucitol is a drug which is used as a non-stimulant laxative via an oral suspension or enema. D-Glucitol exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). D-Glucitol has been found throughout most human tissues, and has also been detected in most biofluids, including cerebrospinal fluid, saliva, feces, and urine. D-Glucitol exists in all eukaryotes, ranging from yeast to humans. In humans, D-glucitol is involved in the galactose metabolism pathway, the fructose and mannose degradation pathway, and the fructose intolerance, hereditary pathway. D-Glucitol is also involved in a couple of metabolic disorders, which include the fructosuria pathway and the galactosemia pathway. Outside of the human body, D-glucitol can be found in a number of food items such as purslane, soy bean, lemon balm, and rocket salad (ssp.). This makes D-glucitol a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000247

Sorbitol ; HMDB00247	D-Glucitol, also known as D-sorbitol or neosorb, belongs to the class of organic compounds known as sugar alcohols. These are hydrogenated forms of carbohydrate in which the carbonyl group (aldehyde or ketone, reducing sugar) has been reduced to a primary or secondary hydroxyl group. D-Glucitol is a drug which is used as a non-stimulant laxative via an oral suspension or enema. D-Glucitol exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). D-Glucitol has been found throughout most human tissues, and has also been detected in most biofluids, including cerebrospinal fluid, saliva, feces, and urine. D-Glucitol exists in all eukaryotes, ranging from yeast to humans. In humans, D-glucitol is involved in the galactose metabolism pathway, the fructose and mannose degradation pathway, and the fructose intolerance, hereditary pathway. D-Glucitol is also involved in a couple of metabolic disorders, which include the fructosuria pathway and the galactosemia pathway. Outside of the human body, D-glucitol can be found in a number of food items such as purslane, soy bean, lemon balm, and rocket salad (ssp.). This makes D-glucitol a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000247

Spermidine ; HMDB0001257	Spermidine, also known as SPD, belongs to the class of organic compounds known as dialkylamines. These are organic compounds containing a dialkylamine group, characterized by two alkyl groups bonded to the amino nitrogen. Spermidine exists as a solid, soluble (in water), and a very strong basic compound (based on its pKa). Spermidine has been found throughout most human tissues, and has also been detected in most biofluids, including cerebrospinal fluid, urine, blood, and saliva. Within the cell, spermidine is primarily located in the cytoplasm. Spermidine exists in all eukaryotes, ranging from yeast to humans. 5'-Methylthioadenosine and spermidine can be biosynthesized from S-adenosylmethioninamine and putrescine through the action of the enzyme spermidine synthase. In humans, spermidine is involved in the methionine metabolism pathway and spermidine and spermine biosynthesis pathway. Spermidine is also involved in several metabolic disorders, some of which include cystathionine Beta-synthase deficiency, S-adenosylhomocysteine (sah) hydrolase deficiency, methylenetetrahydrofolate reductase deficiency (MTHFRD), and methionine adenosyltransferase deficiency. Outside of the human body, spermidine can be found in radish. This makes spermidine a potential biomarker for the consumption of this food product. Spermidine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001257

Sphinganine ; HMDB0000269	Sphinganine, also known as safingol or D18:0, belongs to the class of organic compounds known as 1,2-aminoalcohols. These are organic compounds containing an alkyl chain with an amine group bound to the C1 atom and an alcohol group bound to the C2 atom. Thus, sphinganine is considered to be a sphingoid base lipid molecule. Sphinganine is considered to be a practically insoluble (in water) and relatively neutral molecule. Sphinganine has been found throughout most human tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, sphinganine is primarily located in the cytoplasm, membrane (predicted from logP) and endoplasmic reticulum. Sphinganine exists in all eukaryotes, ranging from yeast to humans. Sphinganine participates in a number of enzymatic reactions. In particular, Sphinganine can be converted into 3-dehydrosphinganine through its interaction with the enzyme 3-ketodihydrosphingosine reductase. In addition, Sphinganine can be converted into sphinganine 1-phosphate; which is catalyzed by the enzyme sphingosine kinase 2. In humans, sphinganine is involved in the metachromatic leukodystrophy (MLD) pathway, the sphingolipid metabolism pathway, and the globoid cell leukodystrophy pathway. Sphinganine is also involved in a few metabolic disorders, which include the fabry disease pathway, the krabbe disease pathway, and the gaucher disease pathway. Outside of the human body, sphinganine can be found in a number of food items such as chinese cinnamon, spinach, grapefruit/pummelo hybrid, and pomes. This makes sphinganine a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000269

Sphinganine ; HMDB00269	Sphinganine, also known as safingol or D18:0, belongs to the class of organic compounds known as 1,2-aminoalcohols. These are organic compounds containing an alkyl chain with an amine group bound to the C1 atom and an alcohol group bound to the C2 atom. Thus, sphinganine is considered to be a sphingoid base lipid molecule. Sphinganine is considered to be a practically insoluble (in water) and relatively neutral molecule. Sphinganine has been found throughout most human tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, sphinganine is primarily located in the cytoplasm, membrane (predicted from logP) and endoplasmic reticulum. Sphinganine exists in all eukaryotes, ranging from yeast to humans. Sphinganine participates in a number of enzymatic reactions. In particular, Sphinganine can be converted into 3-dehydrosphinganine through its interaction with the enzyme 3-ketodihydrosphingosine reductase. In addition, Sphinganine can be converted into sphinganine 1-phosphate; which is catalyzed by the enzyme sphingosine kinase 2. In humans, sphinganine is involved in the metachromatic leukodystrophy (MLD) pathway, the sphingolipid metabolism pathway, and the globoid cell leukodystrophy pathway. Sphinganine is also involved in a few metabolic disorders, which include the fabry disease pathway, the krabbe disease pathway, and the gaucher disease pathway. Outside of the human body, sphinganine can be found in a number of food items such as chinese cinnamon, spinach, grapefruit/pummelo hybrid, and pomes. This makes sphinganine a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000269

Sphingosine 1-phosphate ; HMDB0000277	Sphingosine-1-phosphate, also known as S1P, belongs to the class of organic compounds known as phosphosphingolipids. These are sphingolipids with a structure based on a sphingoid base that is attached to a phosphate head group. They differ from phosphonospingolipids which have a phosphonate head group. Sphingosine-1-phosphate is considered to be a practically insoluble (in water) and relatively neutral molecule. Sphingosine-1-phosphate has been primarily detected in blood. Within the cell, sphingosine-1-phosphate is primarily located in the cytoplasm, membrane (predicted from logP), endoplasmic reticulum and endosome. In humans, sphingosine-1-phosphate is involved in the metachromatic leukodystrophy (MLD) pathway, the sphingolipid metabolism pathway, and the globoid cell leukodystrophy pathway. Sphingosine-1-phosphate is also involved in a few metabolic disorders, which include the krabbe disease pathway, the fabry disease pathway, and the gaucher disease pathway.	http://www.hmdb.ca/metabolites/HMDB0000277

Sphingosine 1-phosphate ; HMDB00277	Sphingosine-1-phosphate, also known as S1P, belongs to the class of organic compounds known as phosphosphingolipids. These are sphingolipids with a structure based on a sphingoid base that is attached to a phosphate head group. They differ from phosphonospingolipids which have a phosphonate head group. Sphingosine-1-phosphate is considered to be a practically insoluble (in water) and relatively neutral molecule. Sphingosine-1-phosphate has been primarily detected in blood. Within the cell, sphingosine-1-phosphate is primarily located in the cytoplasm, membrane (predicted from logP), endoplasmic reticulum and endosome. In humans, sphingosine-1-phosphate is involved in the metachromatic leukodystrophy (MLD) pathway, the sphingolipid metabolism pathway, and the globoid cell leukodystrophy pathway. Sphingosine-1-phosphate is also involved in a few metabolic disorders, which include the krabbe disease pathway, the fabry disease pathway, and the gaucher disease pathway.	http://www.hmdb.ca/metabolites/HMDB0000277

Sphingosine ; HMDB0000252	Sphingosine, also known as (4e)-sphingenine, belongs to the class of organic compounds known as 1,2-aminoalcohols. These are organic compounds containing an alkyl chain with an amine group bound to the C1 atom and an alcohol group bound to the C2 atom. Sphingosine exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Sphingosine has been found throughout most human tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Sphingosine can be found anywhere throughout the human cell, such as in endoplasmic reticulum, mitochondria, membrane (predicted from logP), and cytoplasm. Sphingosine exists in all eukaryotes, ranging from yeast to humans. Sphingosine participates in a number of enzymatic reactions. In particular, Sphingosine can be converted into sphingosine 1-phosphate through its interaction with the enzyme sphingosine kinase 2. In addition, Sphingosine can be biosynthesized from sphingosine 1-phosphate through its interaction with the enzyme sphingosine-1-phosphate phosphatase 2. In humans, sphingosine is involved in the sphingolipid metabolism pathway, the globoid cell leukodystrophy pathway, and the metachromatic leukodystrophy (MLD) pathway. Sphingosine is also involved in a few metabolic disorders, which include the gaucher disease pathway, the fabry disease pathway, and the krabbe disease pathway.	http://www.hmdb.ca/metabolites/HMDB0000252

Sphingosine ; HMDB00252	Sphingosine, also known as (4e)-sphingenine, belongs to the class of organic compounds known as 1,2-aminoalcohols. These are organic compounds containing an alkyl chain with an amine group bound to the C1 atom and an alcohol group bound to the C2 atom. Sphingosine exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Sphingosine has been found throughout most human tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Sphingosine can be found anywhere throughout the human cell, such as in endoplasmic reticulum, mitochondria, membrane (predicted from logP), and cytoplasm. Sphingosine exists in all eukaryotes, ranging from yeast to humans. Sphingosine participates in a number of enzymatic reactions. In particular, Sphingosine can be converted into sphingosine 1-phosphate through its interaction with the enzyme sphingosine kinase 2. In addition, Sphingosine can be biosynthesized from sphingosine 1-phosphate through its interaction with the enzyme sphingosine-1-phosphate phosphatase 2. In humans, sphingosine is involved in the sphingolipid metabolism pathway, the globoid cell leukodystrophy pathway, and the metachromatic leukodystrophy (MLD) pathway. Sphingosine is also involved in a few metabolic disorders, which include the gaucher disease pathway, the fabry disease pathway, and the krabbe disease pathway.	http://www.hmdb.ca/metabolites/HMDB0000252

Stearic acid ; HMDB0000827	Stearic acid, also known as stearate or 18:0, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Stearic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Stearic acid has been found throughout most human tissues, and has also been detected in most biofluids, including blood, urine, sweat, and saliva. Within the cell, stearic acid is primarily located in the cytoplasm, membrane (predicted from logP), myelin sheath and adiposome. Stearic acid exists in all eukaryotes, ranging from yeast to humans. Stearic acid participates in a number of enzymatic reactions. In particular, Dhap(18:0E) and stearic acid can be biosynthesized from dhap(18:0) and octadecanol; which is catalyzed by the enzyme dihydroxyacetone phosphate acyltransferase and alkyldihydroxyacetonephosphate synthase. In addition, Stearic acid can be biosynthesized from stearoyl-CoA through its interaction with the enzyme acyl-CoA thioesterase. In humans, stearic acid is involved in plasmalogen synthesis pathway. Stearic acid is also involved in the metabolic disorder called the mitochondrial Beta-oxidation OF long chain saturated fatty acids pathway. Outside of the human body, stearic acid can be found in a number of food items such as common cabbage, tamarind, breadnut tree seed, and pili nut. This makes stearic acid a potential biomarker for the consumption of these food products. Stearic acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000827

Stearic acid ; HMDB00827	Stearic acid, also known as stearate or 18:0, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Stearic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Stearic acid has been found throughout most human tissues, and has also been detected in most biofluids, including blood, urine, sweat, and saliva. Within the cell, stearic acid is primarily located in the cytoplasm, membrane (predicted from logP), myelin sheath and adiposome. Stearic acid exists in all eukaryotes, ranging from yeast to humans. Stearic acid participates in a number of enzymatic reactions. In particular, Dhap(18:0E) and stearic acid can be biosynthesized from dhap(18:0) and octadecanol; which is catalyzed by the enzyme dihydroxyacetone phosphate acyltransferase and alkyldihydroxyacetonephosphate synthase. In addition, Stearic acid can be biosynthesized from stearoyl-CoA through its interaction with the enzyme acyl-CoA thioesterase. In humans, stearic acid is involved in plasmalogen synthesis pathway. Stearic acid is also involved in the metabolic disorder called the mitochondrial Beta-oxidation OF long chain saturated fatty acids pathway. Outside of the human body, stearic acid can be found in a number of food items such as common cabbage, tamarind, breadnut tree seed, and pili nut. This makes stearic acid a potential biomarker for the consumption of these food products. Stearic acid is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000827

Stearoylcarnitine ; HMDB0000848	Stearoylcarnitine, also known as acylcarnitine C18:0, belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, stearoylcarnitine is considered to be a fatty ester lipid molecule. Stearoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. Stearoylcarnitine has been detected in multiple biofluids, such as blood and urine. Within the cell, stearoylcarnitine is primarily located in the cytoplasm, membrane (predicted from logP) and mitochondria. In humans, stearoylcarnitine is involved in the metabolic disorder called the mitochondrial Beta-oxidation OF long chain saturated fatty acids pathway. Stearoylcarnitine has been linked to the inborn metabolic disorders including celiac disease.	http://www.hmdb.ca/metabolites/HMDB0000848
Stearoylcarnitine ; HMDB00848	Stearoylcarnitine, also known as acylcarnitine C18:0, belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, stearoylcarnitine is considered to be a fatty ester lipid molecule. Stearoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. Stearoylcarnitine has been detected in multiple biofluids, such as blood and urine. Within the cell, stearoylcarnitine is primarily located in the cytoplasm, membrane (predicted from logP) and mitochondria. In humans, stearoylcarnitine is involved in the metabolic disorder called the mitochondrial Beta-oxidation OF long chain saturated fatty acids pathway. Stearoylcarnitine has been linked to the inborn metabolic disorders including celiac disease.	http://www.hmdb.ca/metabolites/HMDB0000848

Stearoylethanolamide ; HMDB0013078	Stearoyl-ea, also known as stearamide mea, belongs to the class of organic compounds known as n-acylethanolamines. N-acylethanolamines are compounds containing an N-acyethanolamine moiety, which is characterized by an acyl group is linked to the nitrogen atom of ethanolamine. Thus, stearoyl-ea is considered to be a fatty amide lipid molecule. Stearoyl-ea exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Stearoyl-ea has been primarily detected in blood. Within the cell, stearoyl-ea is primarily located in the membrane (predicted from logP). Stearoyl-ea can be biosynthesized from octadecanoic acid.	http://www.hmdb.ca/metabolites/HMDB0013078

Suberic acid ; HMDB0000893	Suberic acid, also known as 1,8-octanedioate or cork acid, belongs to the class of organic compounds known as medium-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 4 and 12 carbon atoms. Suberic acid exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Suberic acid has been found in human prostate tissue, and has also been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, suberic acid is primarily located in the cytoplasm and adiposome. Suberic acid is also a parent compound for other transformation products, including but not limited to, 3-hydroxysuberic acid, 2-hydroxyoctanedioic acid, and 2-ethyloctanedioic acid. Outside of the human body, suberic acid can be found in green bean, pulses, and yellow wax bean. This makes suberic acid a potential biomarker for the consumption of these food products. Suberic acid has been found to be associated with several diseases known as schizophrenia and 3-hydroxy-3-methylglutaryl-CoA synthase deficiency; suberic acid has also been linked to several inborn metabolic disorders including medium chain acyl-CoA dehydrogenase deficiency, carnitine-acylcarnitine translocase deficiency, and malonyl-CoA decarboxylase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000893

Suberic acid ; HMDB00893	Suberic acid, also known as 1,8-octanedioate or cork acid, belongs to the class of organic compounds known as medium-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 4 and 12 carbon atoms. Suberic acid exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Suberic acid has been found in human prostate tissue, and has also been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, suberic acid is primarily located in the cytoplasm and adiposome. Suberic acid is also a parent compound for other transformation products, including but not limited to, 3-hydroxysuberic acid, 2-hydroxyoctanedioic acid, and 2-ethyloctanedioic acid. Outside of the human body, suberic acid can be found in green bean, pulses, and yellow wax bean. This makes suberic acid a potential biomarker for the consumption of these food products. Suberic acid has been found to be associated with several diseases known as schizophrenia and 3-hydroxy-3-methylglutaryl-CoA synthase deficiency; suberic acid has also been linked to several inborn metabolic disorders including medium chain acyl-CoA dehydrogenase deficiency, carnitine-acylcarnitine translocase deficiency, and malonyl-CoA decarboxylase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000893

Succinic acid ; HMDB0000254	Succinic acid, also known as butanedionic acid or succinate, belongs to the class of organic compounds known as dicarboxylic acids and derivatives. These are organic compounds containing exactly two carboxylic acid groups. Succinic acid is a drug which is used for nutritional supplementation, also for treating dietary shortage or imbalance. Succinic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Succinic acid has been found throughout most human tissues, and has also been detected in most biofluids, including cerebrospinal fluid, breast milk, sweat, and blood. Within the cell, succinic acid is primarily located in the mitochondria, endoplasmic reticulum, peroxisome and cytoplasm. Succinic acid exists in all eukaryotes, ranging from yeast to humans. Succinic acid participates in a number of enzymatic reactions. In particular, Succinic acid can be biosynthesized from succinic acid semialdehyde; which is mediated by the enzyme succinate-semialdehyde dehydrogenase, mitochondrial. Furthermore, Succinic acid can be converted into fumaric acid; which is catalyzed by the enzyme succinate dehydrogenase. Finally, Succinic acid can be biosynthesized from acetoacetic acid and succinyl-CoA through the action of the enzyme succinyl-coa:3-ketoacid coenzyme A transferase 1, mitochondrial. In humans, succinic acid is involved in the oncogenic action OF 2-hydroxyglutarate pathway, the citric Acid cycle pathway, the phytanic Acid peroxisomal oxidation pathway, and the ketone body metabolism pathway. Succinic acid is also involved in several metabolic disorders, some of which include the hyperornithinemia with gyrate atrophy (hoga) pathway, the isovaleric aciduria pathway, the 3-methylglutaconic aciduria type III pathway, and the hyperprolinemia type II pathway. Succinic acid is an odorless and sour tasting compound that can be found in a	http://www.hmdb.ca/metabolites/HMDB0000254

	number of food items such as onion-family vegetables, dock, common walnut, and tarragon. This makes succinic acid a potential biomarker for the consumption of these food products. Succinic acid is a potentially toxic compound. Succinic acid has been found to be associated with several diseases known as lung cancer, lipoyltransferase 1 deficiency, canavan disease, and alzheimer's disease; succinic acid has also been linked to the inborn metabolic disorders including d-2-hydroxyglutaric aciduria.	

Succinic acid ; HMDB00254	Succinic acid, also known as butanedionic acid or succinate, belongs to the class of organic compounds known as dicarboxylic acids and derivatives. These are organic compounds containing exactly two carboxylic acid groups. Succinic acid is a drug which is used for nutritional supplementation, also for treating dietary shortage or imbalance. Succinic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Succinic acid has been found throughout most human tissues, and has also been detected in most biofluids, including cerebrospinal fluid, breast milk, sweat, and blood. Within the cell, succinic acid is primarily located in the mitochondria, endoplasmic reticulum, peroxisome and cytoplasm. Succinic acid exists in all eukaryotes, ranging from yeast to humans. Succinic acid participates in a number of enzymatic reactions. In particular, Succinic acid can be biosynthesized from succinic acid semialdehyde; which is mediated by the enzyme succinate-semialdehyde dehydrogenase, mitochondrial. Furthermore, Succinic acid can be converted into fumaric acid; which is catalyzed by the enzyme succinate dehydrogenase. Finally, Succinic acid can be biosynthesized from acetoacetic acid and succinyl-CoA through the action of the enzyme succinyl-coa:3-ketoacid coenzyme A transferase 1, mitochondrial. In humans, succinic acid is involved in the oncogenic action OF 2-hydroxyglutarate pathway, the citric Acid cycle pathway, the phytanic Acid peroxisomal oxidation pathway, and the ketone body metabolism pathway. Succinic acid is also involved in several metabolic disorders, some of which include the hyperornithinemia with gyrate atrophy (hoga) pathway, the isovaleric aciduria pathway, the 3-methylglutaconic aciduria type III pathway, and the hyperprolinemia type II pathway. Succinic acid is an odorless and sour tasting compound that can be found in a	http://www.hmdb.ca/metabolites/HMDB0000254

	number of food items such as onion-family vegetables, dock, common walnut, and tarragon. This makes succinic acid a potential biomarker for the consumption of these food products. Succinic acid is a potentially toxic compound. Succinic acid has been found to be associated with several diseases known as lung cancer, lipoyltransferase 1 deficiency, canavan disease, and alzheimer's disease; succinic acid has also been linked to the inborn metabolic disorders including d-2-hydroxyglutaric aciduria.	
Succinyladenosine ; HMDB0000912	Succinyladenosine belongs to the class of organic compounds known as purine nucleosides. Purine nucleosides are compounds comprising a purine base attached to a ribosyl or deoxyribosyl moiety. Succinyladenosine exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Succinyladenosine has been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid. Within the cell, succinyladenosine is primarily located in the cytoplasm. Succinyladenosine can be biosynthesized from adenosine and succinic acid. Succinyladenosine has been found to be associated with the diseases known as autism; succinyladenosine has also been linked to several inborn metabolic disorders including adenylosuccinate lyase deficiency and fumarase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000912

Succinyladenosine ; HMDB00912	Succinyladenosine belongs to the class of organic compounds known as purine nucleosides. Purine nucleosides are compounds comprising a purine base attached to a ribosyl or deoxyribosyl moiety. Succinyladenosine exists as a solid, slightly soluble (in water), and a weakly acidic compound (based on its pKa). Succinyladenosine has been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid. Within the cell, succinyladenosine is primarily located in the cytoplasm. Succinyladenosine can be biosynthesized from adenosine and succinic acid. Succinyladenosine has been found to be associated with the diseases known as autism; succinyladenosine has also been linked to several inborn metabolic disorders including adenylosuccinate lyase deficiency and fumarase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000912

Sucrose ; HMDB0000258	Sucrose, also known as cane sugar or saccharose, belongs to the class of organic compounds known as o-glycosyl compounds. These are glycoside in which a sugar group is bonded through one carbon to another group via a O-glycosidic bond. Sucrose exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Sucrose has been found throughout most human tissues, and has also been detected in most biofluids, including blood, saliva, feces, and urine. Within the cell, sucrose is primarily located in the myelin sheath. Sucrose exists in all eukaryotes, ranging from yeast to humans. Sucrose participates in a number of enzymatic reactions. In particular, Sucrose and D-galactose can be biosynthesized from raffinose through the action of the enzyme Alpha-galactosidase a. Furthermore, Sucrose can be converted into D-galactose and D-fructose; which is mediated by the enzyme lysosomal alpha-glucosidase. Finally, Sucrose can be biosynthesized from Alpha-D-glucose and D-fructose through its interaction with the enzyme sucrase-isomaltase, intestinal. In humans, sucrose is involved in the galactose metabolism pathway and the starch and sucrose metabolism pathway. Sucrose is also involved in several metabolic disorders, some of which include the glycogenosis, type iii. cori disease, debrancher glycogenosis pathway, the glycogenosis, type vi. hers disease pathway, the galactosemia pathway, and the mucopolysaccharidosis vi. sly syndrome pathway. Outside of the human body, sucrose can be found in a number of food items such as horchata, eastern oyster, corn grits, and rye. This makes sucrose a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000258

Sucrose ; HMDB00258	Sucrose, also known as cane sugar or saccharose, belongs to the class of organic compounds known as o-glycosyl compounds. These are glycoside in which a sugar group is bonded through one carbon to another group via a O-glycosidic bond. Sucrose exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Sucrose has been found throughout most human tissues, and has also been detected in most biofluids, including blood, saliva, feces, and urine. Within the cell, sucrose is primarily located in the myelin sheath. Sucrose exists in all eukaryotes, ranging from yeast to humans. Sucrose participates in a number of enzymatic reactions. In particular, Sucrose and D-galactose can be biosynthesized from raffinose through the action of the enzyme Alpha-galactosidase a. Furthermore, Sucrose can be converted into D-galactose and D-fructose; which is mediated by the enzyme lysosomal alpha-glucosidase. Finally, Sucrose can be biosynthesized from Alpha-D-glucose and D-fructose through its interaction with the enzyme sucrase-isomaltase, intestinal. In humans, sucrose is involved in the galactose metabolism pathway and the starch and sucrose metabolism pathway. Sucrose is also involved in several metabolic disorders, some of which include the glycogenosis, type iii. cori disease, debrancher glycogenosis pathway, the glycogenosis, type vi. hers disease pathway, the galactosemia pathway, and the mucopolysaccharidosis vi. sly syndrome pathway. Outside of the human body, sucrose can be found in a number of food items such as horchata, eastern oyster, corn grits, and rye. This makes sucrose a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000258

Sulfamethoxazole ; HMDB0015150	Sulfamethoxazole, also known as gantanol or sinomin, belongs to the class of organic compounds known as aminobenzenesulfonamides. These are organic compounds containing a benzenesulfonamide moiety with an amine group attached to the benzene ring. Sulfamethoxazole is a drug which is used for the treatment bacterial infections causing bronchitis, prostatitis and urinary tract infections. Sulfamethoxazole exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Sulfamethoxazole has been detected in multiple biofluids, such as urine and blood. Within the cell, sulfamethoxazole is primarily located in the cytoplasm and membrane (predicted from logP). Sulfamethoxazole participates in a number of enzymatic reactions. In particular, sulfamethoxazole can be biosynthesized from sulfanilamide. Sulfamethoxazole is also a parent compound for other transformation products, including but not limited to, sulfamethoxazole hydroxylamine, nitrososulfamethoxazole, and N-acetylsulfamethoxazole.	http://www.hmdb.ca/metabolites/HMDB0015150
Symmetric dimethylarginine ; HMDB0003334	Symmetric dimethylarginine, also known as N,n'-dimethylarginine or sdma, belongs to the class of organic compounds known as arginine and derivatives. Arginine and derivatives are compounds containing arginine or a derivative thereof resulting from reaction of arginine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. Symmetric dimethylarginine is slightly soluble (in water) and a moderately acidic compound (based on its pKa). Symmetric dimethylarginine has been found in human kidney tissue, and has also been primarily detected in saliva, feces, urine, and blood. Outside of the human body, symmetric dimethylarginine can be found in pulses. This makes symmetric dimethylarginine a potential biomarker for the consumption of this food product. Symmetric dimethylarginine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0003334

Symmetric dimethylarginine ; HMDB03334	Symmetric dimethylarginine, also known as N,n'-dimethylarginine or sdma, belongs to the class of organic compounds known as arginine and derivatives. Arginine and derivatives are compounds containing arginine or a derivative thereof resulting from reaction of arginine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. Symmetric dimethylarginine is slightly soluble (in water) and a moderately acidic compound (based on its pKa). Symmetric dimethylarginine has been found in human kidney tissue, and has also been primarily detected in saliva, feces, urine, and blood. Outside of the human body, symmetric dimethylarginine can be found in pulses. This makes symmetric dimethylarginine a potential biomarker for the consumption of this food product. Symmetric dimethylarginine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0003334
Tartaric acid ; HMDB0000956		http://www.hmdb.ca/metabolites/HMDB0000956
Tartaric acid ; HMDB00956		http://www.hmdb.ca/metabolites/HMDB0000956

Taurine ; HMDB0000251	Taurine, also known as taufon or 2-sulfoethylamine, belongs to the class of organic compounds known as organosulfonic acids. Organosulfonic acids are compounds containing the sulfonic acid group, which has the general structure RS(=O)2OH (R is not a hydrogen atom). Taurine exists as a solid, soluble (in water), and an extremely strong acidic compound (based on its pKa). Taurine has been found throughout most human tissues, and has also been detected in most biofluids, including breast milk, cerebrospinal fluid, blood, and feces. Within the cell, taurine is primarily located in the peroxisome. Taurine exists in all eukaryotes, ranging from yeast to humans. Taurine participates in a number of enzymatic reactions. In particular, Chenodeoxycholoyl-CoA and taurine can be converted into taurochenodesoxycholic acid through the action of the enzyme bile acid-coa:amino acid N-acyltransferase. In addition, Choloyl-CoA and taurine can be converted into taurocholic acid; which is mediated by the enzyme bile acid-coa:amino acid N-acyltransferase. In humans, taurine is involved in the taurine and hypotaurine metabolism pathway, congenital bile acid synthesis defect type II pathway, congenital bile acid synthesis defect type III pathway, and the cerebrotendinous xanthomatosis (CTX) pathway. Taurine is also involved in a few metabolic disorders, which include 27-hydroxylase deficiency, the familial hypercholanemia (fhca) pathway, and the zellweger syndrome pathway.	http://www.hmdb.ca/metabolites/HMDB0000251

Taurine ; HMDB00251	Taurine, also known as taufon or 2-sulfoethylamine, belongs to the class of organic compounds known as organosulfonic acids. Organosulfonic acids are compounds containing the sulfonic acid group, which has the general structure RS(=O)2OH (R is not a hydrogen atom). Taurine exists as a solid, soluble (in water), and an extremely strong acidic compound (based on its pKa). Taurine has been found throughout most human tissues, and has also been detected in most biofluids, including breast milk, cerebrospinal fluid, blood, and feces. Within the cell, taurine is primarily located in the peroxisome. Taurine exists in all eukaryotes, ranging from yeast to humans. Taurine participates in a number of enzymatic reactions. In particular, Chenodeoxycholoyl-CoA and taurine can be converted into taurochenodesoxycholic acid through the action of the enzyme bile acid-coa:amino acid N-acyltransferase. In addition, Choloyl-CoA and taurine can be converted into taurocholic acid; which is mediated by the enzyme bile acid-coa:amino acid N-acyltransferase. In humans, taurine is involved in the taurine and hypotaurine metabolism pathway, congenital bile acid synthesis defect type II pathway, congenital bile acid synthesis defect type III pathway, and the cerebrotendinous xanthomatosis (CTX) pathway. Taurine is also involved in a few metabolic disorders, which include 27-hydroxylase deficiency, the familial hypercholanemia (fhca) pathway, and the zellweger syndrome pathway.	http://www.hmdb.ca/metabolites/HMDB0000251

Tauro-b-muricholic acid ; HMDB0000932	Tauro-b-muricholic acid, also known as tauro-beta-muricholate or T-alpha-MC, belongs to the class of organic compounds known as taurinated bile acids and derivatives. These are bile acid derivatives containing a taurine conjugated to the bile acid moiety. Tauro-b-muricholic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Tauro-b-muricholic acid has been found throughout all human tissues, and has also been primarily detected in urine. Within the cell, tauro-b-muricholic acid is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000932
Tauro-b-muricholic acid ; HMDB00932	Tauro-b-muricholic acid, also known as tauro-beta-muricholate or T-alpha-MC, belongs to the class of organic compounds known as taurinated bile acids and derivatives. These are bile acid derivatives containing a taurine conjugated to the bile acid moiety. Tauro-b-muricholic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Tauro-b-muricholic acid has been found throughout all human tissues, and has also been primarily detected in urine. Within the cell, tauro-b-muricholic acid is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000932
Taurochenodeoxycholate-3-sulfate ; HMDB0002486	Taurochenodeoxycholate-3-sulfate belongs to the class of organic compounds known as taurinated bile acids and derivatives. These are bile acid derivatives containing a taurine conjugated to the bile acid moiety. Taurochenodeoxycholate-3-sulfate is considered to be a practically insoluble (in water) and relatively neutral molecule. Taurochenodeoxycholate-3-sulfate has been found in human hepatic tissue tissue, and has also been primarily detected in urine. Within the cell, taurochenodeoxycholate-3-sulfate is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0002486

Taurochenodesoxycholic acid ; HMDB0000951	Taurochenodeoxycholic acid, also known as chenodeoxycholoyltaurine or taurine chenodeoxycholate, belongs to the class of organic compounds known as taurinated bile acids and derivatives. These are bile acid derivatives containing a taurine conjugated to the bile acid moiety. Taurochenodeoxycholic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Taurochenodeoxycholic acid has been found in human hepatic tissue tissue, and has also been primarily detected in bile, feces, urine, and blood. Within the cell, taurochenodeoxycholic acid is primarily located in the membrane (predicted from logP) and cytoplasm. In humans, taurochenodeoxycholic acid is involved in bile acid biosynthesis pathway, congenital bile acid synthesis defect type III pathway, congenital bile acid synthesis defect type II pathway, and the cerebrotendinous xanthomatosis (CTX) pathway. Taurochenodeoxycholic acid is also involved in a few metabolic disorders, which include the zellweger syndrome pathway, 27-hydroxylase deficiency, and the familial hypercholanemia (fhca) pathway.	http://www.hmdb.ca/metabolites/HMDB0000951

Taurochenodesoxycholic acid ; HMDB00951	Taurochenodeoxycholic acid, also known as chenodeoxycholoyltaurine or taurine chenodeoxycholate, belongs to the class of organic compounds known as taurinated bile acids and derivatives. These are bile acid derivatives containing a taurine conjugated to the bile acid moiety. Taurochenodeoxycholic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Taurochenodeoxycholic acid has been found in human hepatic tissue tissue, and has also been primarily detected in bile, feces, urine, and blood. Within the cell, taurochenodeoxycholic acid is primarily located in the membrane (predicted from logP) and cytoplasm. In humans, taurochenodeoxycholic acid is involved in bile acid biosynthesis pathway, congenital bile acid synthesis defect type III pathway, congenital bile acid synthesis defect type II pathway, and the cerebrotendinous xanthomatosis (CTX) pathway. Taurochenodeoxycholic acid is also involved in a few metabolic disorders, which include the zellweger syndrome pathway, 27-hydroxylase deficiency, and the familial hypercholanemia (fhca) pathway.	http://www.hmdb.ca/metabolites/HMDB0000951

Taurocholic acid ; HMDB0000036	Taurocholic acid, also known as N-choloyltaurine or taurocholate, belongs to the class of organic compounds known as trihydroxy bile acids, alcohols and derivatives. These are prenol lipids structurally characterized by a bile acid or alcohol which bears three hydroxyl groups. Taurocholic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Taurocholic acid has been found in human hepatic , intestine and liver tissues, and has also been primarily detected in bile, feces, urine, and blood. Within the cell, taurocholic acid is primarily located in the myelin sheath, membrane (predicted from logP) and cytoplasm. Taurocholic acid exists in all eukaryotes, ranging from yeast to humans. Taurocholic acid can be biosynthesized from choloyl-CoA and taurine; which is catalyzed by the enzyme bile acid-coa:amino acid N-acyltransferase. In humans, taurocholic acid is involved in bile acid biosynthesis pathway, the cerebrotendinous xanthomatosis (CTX) pathway, congenital bile acid synthesis defect type III pathway, and congenital bile acid synthesis defect type II pathway. Taurocholic acid is also involved in a few metabolic disorders, which include 27-hydroxylase deficiency, the zellweger syndrome pathway, and the familial hypercholanemia (fhca) pathway.	http://www.hmdb.ca/metabolites/HMDB0000036

Taurocholic acid ; HMDB00036	Taurocholic acid, also known as N-choloyltaurine or taurocholate, belongs to the class of organic compounds known as trihydroxy bile acids, alcohols and derivatives. These are prenol lipids structurally characterized by a bile acid or alcohol which bears three hydroxyl groups. Taurocholic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Taurocholic acid has been found in human hepatic , intestine and liver tissues, and has also been primarily detected in bile, feces, urine, and blood. Within the cell, taurocholic acid is primarily located in the myelin sheath, membrane (predicted from logP) and cytoplasm. Taurocholic acid exists in all eukaryotes, ranging from yeast to humans. Taurocholic acid can be biosynthesized from choloyl-CoA and taurine; which is catalyzed by the enzyme bile acid-coa:amino acid N-acyltransferase. In humans, taurocholic acid is involved in bile acid biosynthesis pathway, the cerebrotendinous xanthomatosis (CTX) pathway, congenital bile acid synthesis defect type III pathway, and congenital bile acid synthesis defect type II pathway. Taurocholic acid is also involved in a few metabolic disorders, which include 27-hydroxylase deficiency, the zellweger syndrome pathway, and the familial hypercholanemia (fhca) pathway.	http://www.hmdb.ca/metabolites/HMDB0000036

Taurodeoxycholic acid ; HMDB0000896	Taurodeoxycholic acid, also known as taurodeoxycholate or deoxycholyltaurine, belongs to the class of organic compounds known as taurinated bile acids and derivatives. These are bile acid derivatives containing a taurine conjugated to the bile acid moiety. Taurodeoxycholic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Taurodeoxycholic acid has been found in human hepatic tissue and intestine tissues, and has also been primarily detected in bile, feces, blood, and urine. Within the cell, taurodeoxycholic acid is primarily located in the membrane (predicted from logP) and cytoplasm. In humans, taurodeoxycholic acid is involved in the cerebrotendinous xanthomatosis (CTX) pathway, congenital bile acid synthesis defect type III pathway, bile acid biosynthesis pathway, and congenital bile acid synthesis defect type II pathway. Taurodeoxycholic acid is also involved in a few metabolic disorders, which include the zellweger syndrome pathway, 27-hydroxylase deficiency, and the familial hypercholanemia (fhca) pathway.	http://www.hmdb.ca/metabolites/HMDB0000896

Taurodeoxycholic acid ; HMDB00896	Taurodeoxycholic acid, also known as taurodeoxycholate or deoxycholyltaurine, belongs to the class of organic compounds known as taurinated bile acids and derivatives. These are bile acid derivatives containing a taurine conjugated to the bile acid moiety. Taurodeoxycholic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Taurodeoxycholic acid has been found in human hepatic tissue and intestine tissues, and has also been primarily detected in bile, feces, blood, and urine. Within the cell, taurodeoxycholic acid is primarily located in the membrane (predicted from logP) and cytoplasm. In humans, taurodeoxycholic acid is involved in the cerebrotendinous xanthomatosis (CTX) pathway, congenital bile acid synthesis defect type III pathway, bile acid biosynthesis pathway, and congenital bile acid synthesis defect type II pathway. Taurodeoxycholic acid is also involved in a few metabolic disorders, which include the zellweger syndrome pathway, 27-hydroxylase deficiency, and the familial hypercholanemia (fhca) pathway.	http://www.hmdb.ca/metabolites/HMDB0000896
Taurolithocholic acid 3-sulfate ; HMDB0002580	Taurolithocholate sulfate, also known as SLCT-3-sulfate or TLC-S, belongs to the class of organic compounds known as taurinated bile acids and derivatives. These are bile acid derivatives containing a taurine conjugated to the bile acid moiety. Taurolithocholate sulfate is considered to be a practically insoluble (in water) and relatively neutral molecule. Taurolithocholate sulfate has been found in human hepatic tissue tissue, and has also been detected in multiple biofluids, such as feces and urine. Within the cell, taurolithocholate sulfate is primarily located in the membrane (predicted from logP) and cytoplasm. Taurolithocholate sulfate can be converted into taurolithocholic acid.	http://www.hmdb.ca/metabolites/HMDB0002580

Tauroursodeoxycholic acid ; HMDB0000874	Tauroursodeoxycholic acid, also known as tudca or ur 906, belongs to the class of organic compounds known as taurinated bile acids and derivatives. These are bile acid derivatives containing a taurine conjugated to the bile acid moiety. Tauroursodeoxycholic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Tauroursodeoxycholic acid has been found throughout all human tissues, and has also been detected in multiple biofluids, such as feces, blood, and urine. Within the cell, tauroursodeoxycholic acid is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000874
Tauroursodeoxycholic acid ; HMDB00874	Tauroursodeoxycholic acid, also known as tudca or ur 906, belongs to the class of organic compounds known as taurinated bile acids and derivatives. These are bile acid derivatives containing a taurine conjugated to the bile acid moiety. Tauroursodeoxycholic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Tauroursodeoxycholic acid has been found throughout all human tissues, and has also been detected in multiple biofluids, such as feces, blood, and urine. Within the cell, tauroursodeoxycholic acid is primarily located in the membrane (predicted from logP) and cytoplasm.	http://www.hmdb.ca/metabolites/HMDB0000874

Testosterone sulfate ; HMDB0002833	Testosterone sulfate, also known as androgel or testolin, belongs to the class of organic compounds known as sulfated steroids. These are sterol lipids containing a sulfate group attached to the steroid skeleton. Testosterone sulfate exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Testosterone sulfate has been found throughout most human tissues, and has also been detected in multiple biofluids, such as urine and blood. Within the cell, testosterone sulfate is primarily located in the cytoplasm and membrane (predicted from logP).	http://www.hmdb.ca/metabolites/HMDB0002833
Tetradecanedioic acid ; HMDB0000872	Tetradecanedioic acid, also known as 1,14-tetradecanedioate or NSC 9504, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Tetradecanedioic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Tetradecanedioic acid has been detected in multiple biofluids, such as feces, blood, and urine. Within the cell, tetradecanedioic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. Tetradecanedioic acid is also a parent compound for other transformation products, including but not limited to, tetradecane, tetradecanedioyl-CoA, and (3S)-hydroxytetradecanedioyl-CoA.	http://www.hmdb.ca/metabolites/HMDB0000872

Tetradecanedioic acid ; HMDB00872	Tetradecanedioic acid, also known as 1,14-tetradecanedioate or NSC 9504, belongs to the class of organic compounds known as long-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 13 and 21 carbon atoms. Tetradecanedioic acid is considered to be a practically insoluble (in water) and relatively neutral molecule. Tetradecanedioic acid has been detected in multiple biofluids, such as feces, blood, and urine. Within the cell, tetradecanedioic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome. Tetradecanedioic acid is also a parent compound for other transformation products, including but not limited to, tetradecane, tetradecanedioyl-CoA, and (3S)-hydroxytetradecanedioyl-CoA.	http://www.hmdb.ca/metabolites/HMDB0000872
Tetradecanoylcarnitine ; HMDB0005066	Tetradecanoylcarnitine, also known as (R)-myristoylcarnitine, belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, tetradecanoylcarnitine is considered to be a fatty ester lipid molecule. Tetradecanoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. Tetradecanoylcarnitine has been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, tetradecanoylcarnitine is primarily located in the membrane (predicted from logP) and cytoplasm. Tetradecanoylcarnitine exists in all eukaryotes, ranging from yeast to humans. Outside of the human body, tetradecanoylcarnitine can be found in cow milk. This makes tetradecanoylcarnitine a potential biomarker for the consumption of this food product. Tetradecanoylcarnitine has been linked to the inborn metabolic disorders including glutaric aciduria II.	http://www.hmdb.ca/metabolites/HMDB0005066

Tetradecanoylcarnitine ; HMDB05066	Tetradecanoylcarnitine, also known as (R)-myristoylcarnitine, belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Thus, tetradecanoylcarnitine is considered to be a fatty ester lipid molecule. Tetradecanoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. Tetradecanoylcarnitine has been detected in multiple biofluids, such as saliva, urine, and blood. Within the cell, tetradecanoylcarnitine is primarily located in the membrane (predicted from logP) and cytoplasm. Tetradecanoylcarnitine exists in all eukaryotes, ranging from yeast to humans. Outside of the human body, tetradecanoylcarnitine can be found in cow milk. This makes tetradecanoylcarnitine a potential biomarker for the consumption of this food product. Tetradecanoylcarnitine has been linked to the inborn metabolic disorders including glutaric aciduria II.	http://www.hmdb.ca/metabolites/HMDB0005066
TG(14:0/14:0/15:0) ; HMDB0042062	TG(14:0/14:0/15:0), also known as triacylglycerol or triglyceride, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(14:0/14:0/15:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:0/14:0/15:0) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:0/14:0/15:0) is primarily located in the membrane (predicted from logP) and adiposome. TG(14:0/14:0/15:0) exists in all eukaryotes, ranging from yeast to humans. In humans, TG(14:0/14:0/15:0) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(14:0/14:0/15:0) pathway.	http://www.hmdb.ca/metabolites/HMDB0042062

TG(14:0/14:0/15:0) ; HMDB42062	TG(14:0/14:0/15:0), also known as triacylglycerol or triglyceride, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(14:0/14:0/15:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:0/14:0/15:0) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:0/14:0/15:0) is primarily located in the membrane (predicted from logP) and adiposome. TG(14:0/14:0/15:0) exists in all eukaryotes, ranging from yeast to humans. In humans, TG(14:0/14:0/15:0) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(14:0/14:0/15:0) pathway.	http://www.hmdb.ca/metabolites/HMDB0042062
TG(14:0/14:0/16:0) ; HMDB0042063	TG(14:0/14:0/16:0), also known as triacylglycerol or triglyceride, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(14:0/14:0/16:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:0/14:0/16:0) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:0/14:0/16:0) is primarily located in the membrane (predicted from logP) and adiposome. TG(14:0/14:0/16:0) exists in all eukaryotes, ranging from yeast to humans. In humans, TG(14:0/14:0/16:0) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(14:0/14:0/16:0) pathway.	http://www.hmdb.ca/metabolites/HMDB0042063

TG(14:0/14:0/16:0) ; HMDB42063	TG(14:0/14:0/16:0), also known as triacylglycerol or triglyceride, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(14:0/14:0/16:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:0/14:0/16:0) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:0/14:0/16:0) is primarily located in the membrane (predicted from logP) and adiposome. TG(14:0/14:0/16:0) exists in all eukaryotes, ranging from yeast to humans. In humans, TG(14:0/14:0/16:0) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(14:0/14:0/16:0) pathway.	http://www.hmdb.ca/metabolites/HMDB0042063
TG(14:0/14:0/18:2(9Z,12Z)) ; HMDB0042076	TG(14:0/14:0/18:2(9Z,12Z)), also known as tag(14:0/14:0/18:2) or tag(46:2), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(14:0/14:0/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:0/14:0/18:2(9Z,12Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:0/14:0/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(14:0/14:0/18:2(9Z,12Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(14:0/14:0/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0042076

TG(14:0/14:0/18:2(9Z,12Z)) ; HMDB42076	TG(14:0/14:0/18:2(9Z,12Z)), also known as tag(14:0/14:0/18:2) or tag(46:2), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(14:0/14:0/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:0/14:0/18:2(9Z,12Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:0/14:0/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(14:0/14:0/18:2(9Z,12Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(14:0/14:0/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0042076
TG(14:0/15:0/14:1(9Z)) ; HMDB0042098	TG(14:0/15:0/14:1(9Z)), also known as tag(43:1) or tracylglycerol(43:1), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(14:0/15:0/14:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:0/15:0/14:1(9Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:0/15:0/14:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(14:0/15:0/14:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(14:0/15:0/14:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0042098

TG(14:0/15:0/14:1(9Z)) ; HMDB42098	TG(14:0/15:0/14:1(9Z)), also known as tag(43:1) or tracylglycerol(43:1), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(14:0/15:0/14:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:0/15:0/14:1(9Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:0/15:0/14:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(14:0/15:0/14:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(14:0/15:0/14:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0042098
TG(14:0/15:0/16:0) ; HMDB0042093	TG(14:0/15:0/16:0), also known as TG(45:0) or triacylglycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(14:0/15:0/16:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:0/15:0/16:0) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:0/15:0/16:0) is primarily located in the membrane (predicted from logP) and adiposome. TG(14:0/15:0/16:0) exists in all eukaryotes, ranging from yeast to humans. In humans, TG(14:0/15:0/16:0) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(14:0/15:0/16:0) pathway.	http://www.hmdb.ca/metabolites/HMDB0042093

TG(14:0/15:0/16:0) ; HMDB42093	TG(14:0/15:0/16:0), also known as TG(45:0) or triacylglycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(14:0/15:0/16:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:0/15:0/16:0) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:0/15:0/16:0) is primarily located in the membrane (predicted from logP) and adiposome. TG(14:0/15:0/16:0) exists in all eukaryotes, ranging from yeast to humans. In humans, TG(14:0/15:0/16:0) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(14:0/15:0/16:0) pathway.	http://www.hmdb.ca/metabolites/HMDB0042093
TG(14:0/15:0/16:1(9Z)) ; HMDB0042099	TG(14:0/15:0/16:1(9Z)), also known as TG(45:1) or triacylglycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(14:0/15:0/16:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:0/15:0/16:1(9Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:0/15:0/16:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. TG(14:0/15:0/16:1(9Z)) exists in all eukaryotes, ranging from yeast to humans. In humans, TG(14:0/15:0/16:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(14:0/15:0/16:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0042099

TG(14:0/15:0/16:1(9Z)) ; HMDB42099	TG(14:0/15:0/16:1(9Z)), also known as TG(45:1) or triacylglycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(14:0/15:0/16:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:0/15:0/16:1(9Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:0/15:0/16:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. TG(14:0/15:0/16:1(9Z)) exists in all eukaryotes, ranging from yeast to humans. In humans, TG(14:0/15:0/16:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(14:0/15:0/16:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0042099
TG(14:0/15:0/18:0) ; HMDB0042094	TG(14:0/15:0/18:0), also known as triacylglycerol or triglyceride, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(14:0/15:0/18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:0/15:0/18:0) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:0/15:0/18:0) is primarily located in the membrane (predicted from logP) and adiposome. TG(14:0/15:0/18:0) exists in all eukaryotes, ranging from yeast to humans. In humans, TG(14:0/15:0/18:0) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(14:0/15:0/18:0) pathway.	http://www.hmdb.ca/metabolites/HMDB0042094

TG(14:0/15:0/18:0) ; HMDB42094	TG(14:0/15:0/18:0), also known as triacylglycerol or triglyceride, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(14:0/15:0/18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:0/15:0/18:0) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:0/15:0/18:0) is primarily located in the membrane (predicted from logP) and adiposome. TG(14:0/15:0/18:0) exists in all eukaryotes, ranging from yeast to humans. In humans, TG(14:0/15:0/18:0) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(14:0/15:0/18:0) pathway.	http://www.hmdb.ca/metabolites/HMDB0042094
TG(14:0/15:0/18:1(11Z)) ; HMDB0042100	TG(14:0/15:0/18:1(11Z)), also known as tag(47:1) or tracylglycerol(47:1), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(14:0/15:0/18:1(11Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:0/15:0/18:1(11Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:0/15:0/18:1(11Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(14:0/15:0/18:1(11Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(14:0/15:0/18:1(11Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0042100

TG(14:0/15:0/18:1(11Z)) ; HMDB42100	TG(14:0/15:0/18:1(11Z)), also known as tag(47:1) or tracylglycerol(47:1), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(14:0/15:0/18:1(11Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:0/15:0/18:1(11Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:0/15:0/18:1(11Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(14:0/15:0/18:1(11Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(14:0/15:0/18:1(11Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0042100
TG(14:0/15:0/20:0) ; HMDB0042095	TG(14:0/15:0/20:0), also known as triacylglycerol or triglyceride, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(14:0/15:0/20:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:0/15:0/20:0) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:0/15:0/20:0) is primarily located in the membrane (predicted from logP) and adiposome. TG(14:0/15:0/20:0) exists in all eukaryotes, ranging from yeast to humans. In humans, TG(14:0/15:0/20:0) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(14:0/15:0/20:0) pathway.	http://www.hmdb.ca/metabolites/HMDB0042095

TG(14:0/15:0/20:0) ; HMDB42095	TG(14:0/15:0/20:0), also known as triacylglycerol or triglyceride, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(14:0/15:0/20:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:0/15:0/20:0) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:0/15:0/20:0) is primarily located in the membrane (predicted from logP) and adiposome. TG(14:0/15:0/20:0) exists in all eukaryotes, ranging from yeast to humans. In humans, TG(14:0/15:0/20:0) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(14:0/15:0/20:0) pathway.	http://www.hmdb.ca/metabolites/HMDB0042095
TG(14:0/15:0/20:3(5Z,8Z,11Z)) ; HMDB0042103	TG(14:0/15:0/20:3(5Z,8Z,11Z)), also known as tag(14:0/15:0/20:3) or tag(49:3), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(14:0/15:0/20:3(5Z,8Z,11Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:0/15:0/20:3(5Z,8Z,11Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:0/15:0/20:3(5Z,8Z,11Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(14:0/15:0/20:3(5Z,8Z,11Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(14:0/15:0/20:3(5Z,8Z,11Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0042103

TG(14:0/15:0/20:3(5Z,8Z,11Z)) ; HMDB42103	TG(14:0/15:0/20:3(5Z,8Z,11Z)), also known as tag(14:0/15:0/20:3) or tag(49:3), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(14:0/15:0/20:3(5Z,8Z,11Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:0/15:0/20:3(5Z,8Z,11Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:0/15:0/20:3(5Z,8Z,11Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(14:0/15:0/20:3(5Z,8Z,11Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(14:0/15:0/20:3(5Z,8Z,11Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0042103
TG(14:0/15:0/22:1(13Z)) ; HMDB0042104	TG(14:0/15:0/22:1(13Z)), also known as tag(51:1) or tracylglycerol(51:1), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(14:0/15:0/22:1(13Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:0/15:0/22:1(13Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:0/15:0/22:1(13Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(14:0/15:0/22:1(13Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(14:0/15:0/22:1(13Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0042104

TG(14:0/15:0/22:1(13Z)) ; HMDB42104	TG(14:0/15:0/22:1(13Z)), also known as tag(51:1) or tracylglycerol(51:1), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(14:0/15:0/22:1(13Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:0/15:0/22:1(13Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:0/15:0/22:1(13Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(14:0/15:0/22:1(13Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(14:0/15:0/22:1(13Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0042104
TG(14:0/20:0/18:2(9Z,12Z)) ; HMDB0042196	TG(14:0/20:0/18:2(9Z,12Z)), also known as tag(14:0/20:0/18:2) or tag(52:2), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(14:0/20:0/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:0/20:0/18:2(9Z,12Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:0/20:0/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(14:0/20:0/18:2(9Z,12Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(14:0/20:0/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0042196

TG(14:0/20:0/18:2(9Z,12Z)) ; HMDB42196	TG(14:0/20:0/18:2(9Z,12Z)), also known as tag(14:0/20:0/18:2) or tag(52:2), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(14:0/20:0/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:0/20:0/18:2(9Z,12Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:0/20:0/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(14:0/20:0/18:2(9Z,12Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(14:0/20:0/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0042196
TG(14:0/22:0/18:2(9Z,12Z)) ; HMDB0042226	TG(14:0/22:0/18:2(9Z,12Z)), also known as tag(14:0/22:0/18:2) or tag(54:2), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(14:0/22:0/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:0/22:0/18:2(9Z,12Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:0/22:0/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(14:0/22:0/18:2(9Z,12Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(14:0/22:0/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0042226

TG(14:0/22:0/18:2(9Z,12Z)) ; HMDB42226	TG(14:0/22:0/18:2(9Z,12Z)), also known as tag(14:0/22:0/18:2) or tag(54:2), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(14:0/22:0/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:0/22:0/18:2(9Z,12Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:0/22:0/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(14:0/22:0/18:2(9Z,12Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(14:0/22:0/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0042226
TG(14:0/22:1(13Z)/18:2(9Z,12Z)) ; HMDB0042466	TG(14:0/22:1(13Z)/18:2(9Z,12Z)), also known as tag(14:0/22:1/18:2) or tag(54:3), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(14:0/22:1(13Z)/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:0/22:1(13Z)/18:2(9Z,12Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:0/22:1(13Z)/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(14:0/22:1(13Z)/18:2(9Z,12Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(14:0/22:1(13Z)/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0042466

TG(14:0/22:1(13Z)/18:2(9Z,12Z)) ; HMDB42466	TG(14:0/22:1(13Z)/18:2(9Z,12Z)), also known as tag(14:0/22:1/18:2) or tag(54:3), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(14:0/22:1(13Z)/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:0/22:1(13Z)/18:2(9Z,12Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:0/22:1(13Z)/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(14:0/22:1(13Z)/18:2(9Z,12Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(14:0/22:1(13Z)/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0042466
TG(15:0/14:1(9Z)/14:1(9Z)) ; HMDB0043169	TG(14:1(9Z)/14:1(9Z)/15:0)[iso3], also known as tag(15:0/14:1/14:1) or tag(43:2), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. Thus, TG(14:1(9Z)/14:1(9Z)/15:0)[iso3] is considered to be a triradylglycerol lipid molecule. TG(14:1(9Z)/14:1(9Z)/15:0)[iso3] is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:1(9Z)/14:1(9Z)/15:0)[iso3] has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:1(9Z)/14:1(9Z)/15:0)[iso3] is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(14:1(9Z)/14:1(9Z)/15:0)[iso3] is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(15:0/14:1(9Z)/14:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0043169

TG(15:0/14:1(9Z)/14:1(9Z)) ; HMDB43169	TG(14:1(9Z)/14:1(9Z)/15:0)[iso3], also known as tag(15:0/14:1/14:1) or tag(43:2), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. Thus, TG(14:1(9Z)/14:1(9Z)/15:0)[iso3] is considered to be a triradylglycerol lipid molecule. TG(14:1(9Z)/14:1(9Z)/15:0)[iso3] is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(14:1(9Z)/14:1(9Z)/15:0)[iso3] has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(14:1(9Z)/14:1(9Z)/15:0)[iso3] is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(14:1(9Z)/14:1(9Z)/15:0)[iso3] is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(15:0/14:1(9Z)/14:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0043169
TG(15:0/14:1(9Z)/16:1(9Z)) ; HMDB0043170	TG(15:0/14:1(9Z)/16:1(9Z)), also known as tag(15:0/14:1/16:1) or tag(45:2), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(15:0/14:1(9Z)/16:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(15:0/14:1(9Z)/16:1(9Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(15:0/14:1(9Z)/16:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(15:0/14:1(9Z)/16:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(15:0/14:1(9Z)/16:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0043170

TG(15:0/14:1(9Z)/16:1(9Z)) ; HMDB43170	TG(15:0/14:1(9Z)/16:1(9Z)), also known as tag(15:0/14:1/16:1) or tag(45:2), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(15:0/14:1(9Z)/16:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(15:0/14:1(9Z)/16:1(9Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(15:0/14:1(9Z)/16:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(15:0/14:1(9Z)/16:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(15:0/14:1(9Z)/16:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0043170
TG(15:0/16:0/20:3(8Z,11Z,14Z)) ; HMDB0011701	TG(15:0/16:0/20:3(8Z,11Z,14Z)), also known as tag(15:0/16:0/20:3n6) or tracylglycerol(15:0/16:0/20:3), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(15:0/16:0/20:3(8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(15:0/16:0/20:3(8Z,11Z,14Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, TG(15:0/16:0/20:3(8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(15:0/16:0/20:3(8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(15:0/16:0/20:3(8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0011701

TG(15:0/16:0/20:3(8Z,11Z,14Z)) ; HMDB11701	TG(15:0/16:0/20:3(8Z,11Z,14Z)), also known as tag(15:0/16:0/20:3n6) or tracylglycerol(15:0/16:0/20:3), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(15:0/16:0/20:3(8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(15:0/16:0/20:3(8Z,11Z,14Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, TG(15:0/16:0/20:3(8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(15:0/16:0/20:3(8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(15:0/16:0/20:3(8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0011701
TG(15:0/18:0/20:3(5Z,8Z,11Z)) ; HMDB0043058	TG(15:0/18:0/20:3(5Z,8Z,11Z)), also known as tag(15:0/18:0/20:3) or tag(53:3), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(15:0/18:0/20:3(5Z,8Z,11Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(15:0/18:0/20:3(5Z,8Z,11Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(15:0/18:0/20:3(5Z,8Z,11Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(15:0/18:0/20:3(5Z,8Z,11Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(15:0/18:0/20:3(5Z,8Z,11Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0043058

TG(15:0/18:0/20:3(5Z,8Z,11Z)) ; HMDB43058	TG(15:0/18:0/20:3(5Z,8Z,11Z)), also known as tag(15:0/18:0/20:3) or tag(53:3), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(15:0/18:0/20:3(5Z,8Z,11Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(15:0/18:0/20:3(5Z,8Z,11Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(15:0/18:0/20:3(5Z,8Z,11Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(15:0/18:0/20:3(5Z,8Z,11Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(15:0/18:0/20:3(5Z,8Z,11Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0043058
TG(15:0/18:1(9Z)/16:0) ; HMDB0011705	TG(15:0/18:1(9Z)/16:0), also known as tag(49:1) or tracylglycerol(49:1), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(15:0/18:1(9Z)/16:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(15:0/18:1(9Z)/16:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, TG(15:0/18:1(9Z)/16:0) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(15:0/18:1(9Z)/16:0) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(15:0/18:1(9Z)/16:0) pathway.	http://www.hmdb.ca/metabolites/HMDB0011705

TG(15:0/18:1(9Z)/16:0) ; HMDB11705	TG(15:0/18:1(9Z)/16:0), also known as tag(49:1) or tracylglycerol(49:1), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(15:0/18:1(9Z)/16:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(15:0/18:1(9Z)/16:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, TG(15:0/18:1(9Z)/16:0) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(15:0/18:1(9Z)/16:0) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(15:0/18:1(9Z)/16:0) pathway.	http://www.hmdb.ca/metabolites/HMDB0011705
TG(15:0/18:1(9Z)/16:1(9Z)) ; HMDB0011706	TG(15:0/18:1(9Z)/16:1(9Z)), also known as tag(15:0/18:1/16:1) or tag(49:2), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(15:0/18:1(9Z)/16:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(15:0/18:1(9Z)/16:1(9Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, TG(15:0/18:1(9Z)/16:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(15:0/18:1(9Z)/16:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(15:0/18:1(9Z)/16:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0011706

TG(15:0/18:1(9Z)/16:1(9Z)) ; HMDB11706	TG(15:0/18:1(9Z)/16:1(9Z)), also known as tag(15:0/18:1/16:1) or tag(49:2), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(15:0/18:1(9Z)/16:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(15:0/18:1(9Z)/16:1(9Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, TG(15:0/18:1(9Z)/16:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(15:0/18:1(9Z)/16:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(15:0/18:1(9Z)/16:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0011706
TG(16:0/14:0/16:0) ; HMDB0010411	TG(16:0/14:0/16:0), also known as tag(46:0) or tracylglycerol(46:0), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/14:0/16:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/14:0/16:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, TG(16:0/14:0/16:0) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/14:0/16:0) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/14:0/16:0) pathway.	http://www.hmdb.ca/metabolites/HMDB0010411

TG(16:0/14:0/16:0) ; HMDB10411	TG(16:0/14:0/16:0), also known as tag(46:0) or tracylglycerol(46:0), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/14:0/16:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/14:0/16:0) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, TG(16:0/14:0/16:0) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/14:0/16:0) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/14:0/16:0) pathway.	http://www.hmdb.ca/metabolites/HMDB0010411
TG(16:0/14:0/16:1(9Z)) ; HMDB0010412	TG(16:0/14:0/16:1(9Z)), also known as tag(16:0/14:0/16:1n7) or tag(46:1), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/14:0/16:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/14:0/16:1(9Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, TG(16:0/14:0/16:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/14:0/16:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/14:0/16:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0010412

TG(16:0/14:0/16:1(9Z)) ; HMDB10412	TG(16:0/14:0/16:1(9Z)), also known as tag(16:0/14:0/16:1n7) or tag(46:1), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/14:0/16:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/14:0/16:1(9Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, TG(16:0/14:0/16:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/14:0/16:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/14:0/16:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0010412
TG(16:0/16:0/16:0) ; HMDB0005356	TG(16:0/16:0/16:0), also known as tripalmitoylglycerol or glyceryl tripalmitate, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. Thus, TG(16:0/16:0/16:0) is considered to be a triradylglycerol lipid molecule. TG(16:0/16:0/16:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/16:0/16:0) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/16:0/16:0) is primarily located in the membrane (predicted from logP) and adiposome. TG(16:0/16:0/16:0) exists in all eukaryotes, ranging from yeast to humans. In humans, TG(16:0/16:0/16:0) is involved in the glycerolipid metabolism pathway and the D-glyceric acidura pathway. TG(16:0/16:0/16:0) is also involved in a few metabolic disorders, which include de novo triacylglycerol biosynthesis TG(16:0/16:0/16:0) pathway, familial lipoprotein lipase deficiency, and glycerol kinase deficiency.	http://www.hmdb.ca/metabolites/HMDB0005356

TG(16:0/16:0/16:0) ; HMDB05356	TG(16:0/16:0/16:0), also known as tripalmitoylglycerol or glyceryl tripalmitate, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. Thus, TG(16:0/16:0/16:0) is considered to be a triradylglycerol lipid molecule. TG(16:0/16:0/16:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/16:0/16:0) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/16:0/16:0) is primarily located in the membrane (predicted from logP) and adiposome. TG(16:0/16:0/16:0) exists in all eukaryotes, ranging from yeast to humans. In humans, TG(16:0/16:0/16:0) is involved in the glycerolipid metabolism pathway and the D-glyceric acidura pathway. TG(16:0/16:0/16:0) is also involved in a few metabolic disorders, which include de novo triacylglycerol biosynthesis TG(16:0/16:0/16:0) pathway, familial lipoprotein lipase deficiency, and glycerol kinase deficiency.	http://www.hmdb.ca/metabolites/HMDB0005356
TG(16:0/16:0/16:1(9Z)) ; HMDB0005359	TG(16:0/16:0/16:1(9Z)), also known as tag(16:0/16:0/16:1n7) or tag(48:1), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/16:0/16:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/16:0/16:1(9Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/16:0/16:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/16:0/16:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/16:0/16:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005359

TG(16:0/16:0/16:1(9Z)) ; HMDB05359	TG(16:0/16:0/16:1(9Z)), also known as tag(16:0/16:0/16:1n7) or tag(48:1), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/16:0/16:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/16:0/16:1(9Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/16:0/16:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/16:0/16:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/16:0/16:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005359

TG(16:0/16:0/18:0) ; HMDB0005357	TG(16:0/16:0/18:0), also known as triacylglycerol or triglyceride, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/16:0/18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/16:0/18:0) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/16:0/18:0) is primarily located in the membrane (predicted from logP) and adiposome. TG(16:0/16:0/18:0) exists in all eukaryotes, ranging from yeast to humans. TG(16:0/16:0/18:0) participates in a number of enzymatic reactions. In particular, TG(16:0/16:0/18:0) can be biosynthesized from DG(16:0/18:0/0:0) through its interaction with the enzyme diacylglycerol O-acyltransferase 1. In addition, TG(16:0/16:0/18:0) can be converted into DG(16:0/18:0/0:0) through the action of the enzyme triacylglycerol lipase complex. In humans, TG(16:0/16:0/18:0) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/16:0/18:0) pathway.	http://www.hmdb.ca/metabolites/HMDB0005357

TG(16:0/16:0/18:0) ; HMDB05357	TG(16:0/16:0/18:0), also known as triacylglycerol or triglyceride, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/16:0/18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/16:0/18:0) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/16:0/18:0) is primarily located in the membrane (predicted from logP) and adiposome. TG(16:0/16:0/18:0) exists in all eukaryotes, ranging from yeast to humans. TG(16:0/16:0/18:0) participates in a number of enzymatic reactions. In particular, TG(16:0/16:0/18:0) can be biosynthesized from DG(16:0/18:0/0:0) through its interaction with the enzyme diacylglycerol O-acyltransferase 1. In addition, TG(16:0/16:0/18:0) can be converted into DG(16:0/18:0/0:0) through the action of the enzyme triacylglycerol lipase complex. In humans, TG(16:0/16:0/18:0) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/16:0/18:0) pathway.	http://www.hmdb.ca/metabolites/HMDB0005357

TG(16:0/16:0/18:1(9Z)) ; HMDB0005360	TG(16:0/16:0/18:1(9Z)), also known as tag(50:1) or tracylglycerol(50:1), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/16:0/18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/16:0/18:1(9Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/16:0/18:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/16:0/18:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/16:0/18:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005360
TG(16:0/16:0/18:1(9Z)) ; HMDB05360	TG(16:0/16:0/18:1(9Z)), also known as tag(50:1) or tracylglycerol(50:1), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/16:0/18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/16:0/18:1(9Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/16:0/18:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/16:0/18:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/16:0/18:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005360

TG(16:0/16:0/18:2(9Z,12Z)) ; HMDB0005362	TG(16:0/16:0/18:2(9Z,12Z)), also known as tag(16:0/16:0/18:2n6) or tag(50:2), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/16:0/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/16:0/18:2(9Z,12Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/16:0/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/16:0/18:2(9Z,12Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/16:0/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005362
TG(16:0/16:0/18:2(9Z,12Z)) ; HMDB05362	TG(16:0/16:0/18:2(9Z,12Z)), also known as tag(16:0/16:0/18:2n6) or tag(50:2), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/16:0/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/16:0/18:2(9Z,12Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/16:0/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/16:0/18:2(9Z,12Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/16:0/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005362

TG(16:0/16:0/20:4(5Z,8Z,11Z,14Z)) ; HMDB0005363	TG(16:0/16:0/20:4(5Z,8Z,11Z,14Z)), also known as tag(16:0/16:0/20:4n6) or tracylglycerol(16:0/16:0/20:4), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/16:0/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/16:0/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/16:0/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/16:0/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/16:0/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005363
TG(16:0/16:0/20:4(5Z,8Z,11Z,14Z)) ; HMDB05363	TG(16:0/16:0/20:4(5Z,8Z,11Z,14Z)), also known as tag(16:0/16:0/20:4n6) or tracylglycerol(16:0/16:0/20:4), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/16:0/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/16:0/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/16:0/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/16:0/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/16:0/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005363

TG(16:0/16:1(9Z)/16:1(9Z)) ; HMDB0005376	TG(16:0/16:1(9Z)/16:1(9Z)), also known as tag(16:0/16:1/16:1) or tag(48:2), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/16:1(9Z)/16:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/16:1(9Z)/16:1(9Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/16:1(9Z)/16:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/16:1(9Z)/16:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/16:1(9Z)/16:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005376
TG(16:0/16:1(9Z)/16:1(9Z)) ; HMDB05376	TG(16:0/16:1(9Z)/16:1(9Z)), also known as tag(16:0/16:1/16:1) or tag(48:2), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/16:1(9Z)/16:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/16:1(9Z)/16:1(9Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/16:1(9Z)/16:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/16:1(9Z)/16:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/16:1(9Z)/16:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005376

TG(16:0/16:1(9Z)/18:1(9Z)) ; HMDB0005377	TG(16:0/16:1(9Z)/18:1(9Z)), also known as tag(16:0/16:1/18:1) or tag(50:2), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/16:1(9Z)/18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/16:1(9Z)/18:1(9Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/16:1(9Z)/18:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/16:1(9Z)/18:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/16:1(9Z)/18:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005377
TG(16:0/16:1(9Z)/18:1(9Z)) ; HMDB05377	TG(16:0/16:1(9Z)/18:1(9Z)), also known as tag(16:0/16:1/18:1) or tag(50:2), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/16:1(9Z)/18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/16:1(9Z)/18:1(9Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/16:1(9Z)/18:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/16:1(9Z)/18:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/16:1(9Z)/18:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005377

TG(16:0/16:1(9Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB0005380	TG(16:0/16:1(9Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(16:0/16:1/20:4) or tag(52:5), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/16:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/16:1(9Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/16:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/16:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/16:1(9Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005380
TG(16:0/16:1(9Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB05380	TG(16:0/16:1(9Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(16:0/16:1/20:4) or tag(52:5), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/16:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/16:1(9Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/16:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/16:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/16:1(9Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005380

TG(16:0/18:0/18:0) ; HMDB0005365	TG(16:0/18:0/18:0), also known as triacylglycerol or tag(52:0), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/18:0/18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/18:0/18:0) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/18:0/18:0) is primarily located in the membrane (predicted from logP) and adiposome. TG(16:0/18:0/18:0) exists in all eukaryotes, ranging from yeast to humans. TG(16:0/18:0/18:0) participates in a number of enzymatic reactions. In particular, TG(16:0/18:0/18:0) can be biosynthesized from DG(16:0/18:0/0:0); which is catalyzed by the enzyme diacylglycerol O-acyltransferase 1. In addition, TG(16:0/18:0/18:0) can be converted into DG(16:0/18:0/0:0) through the action of the enzyme triacylglycerol lipase complex. In humans, TG(16:0/18:0/18:0) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/18:0/18:0) pathway.	http://www.hmdb.ca/metabolites/HMDB0005365

TG(16:0/18:0/18:0) ; HMDB05365	TG(16:0/18:0/18:0), also known as triacylglycerol or tag(52:0), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/18:0/18:0) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/18:0/18:0) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/18:0/18:0) is primarily located in the membrane (predicted from logP) and adiposome. TG(16:0/18:0/18:0) exists in all eukaryotes, ranging from yeast to humans. TG(16:0/18:0/18:0) participates in a number of enzymatic reactions. In particular, TG(16:0/18:0/18:0) can be biosynthesized from DG(16:0/18:0/0:0); which is catalyzed by the enzyme diacylglycerol O-acyltransferase 1. In addition, TG(16:0/18:0/18:0) can be converted into DG(16:0/18:0/0:0) through the action of the enzyme triacylglycerol lipase complex. In humans, TG(16:0/18:0/18:0) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/18:0/18:0) pathway.	http://www.hmdb.ca/metabolites/HMDB0005365

TG(16:0/18:0/18:1(9Z)) ; HMDB0005367	TG(16:0/18:0/18:1(9Z)), also known as tag(52:1) or tracylglycerol(52:1), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/18:0/18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/18:0/18:1(9Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/18:0/18:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/18:0/18:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/18:0/18:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005367
TG(16:0/18:0/18:1(9Z)) ; HMDB05367	TG(16:0/18:0/18:1(9Z)), also known as tag(52:1) or tracylglycerol(52:1), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/18:0/18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/18:0/18:1(9Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/18:0/18:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/18:0/18:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/18:0/18:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005367

TG(16:0/18:0/18:2(9Z,12Z)) ; HMDB0005369	TG(16:0/18:0/18:2(9Z,12Z)), also known as tag(16:0/18:0/18:2n6) or tag(52:2), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/18:0/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/18:0/18:2(9Z,12Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/18:0/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/18:0/18:2(9Z,12Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/18:0/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005369
TG(16:0/18:0/18:2(9Z,12Z)) ; HMDB05369	TG(16:0/18:0/18:2(9Z,12Z)), also known as tag(16:0/18:0/18:2n6) or tag(52:2), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/18:0/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/18:0/18:2(9Z,12Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/18:0/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/18:0/18:2(9Z,12Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/18:0/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005369

TG(16:0/18:0/20:4(5Z,8Z,11Z,14Z)) ; HMDB0005370	TG(16:0/18:0/20:4(5Z,8Z,11Z,14Z)), also known as tag(16:0/18:0/20:4n6) or tracylglycerol(16:0/18:0/20:4), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/18:0/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/18:0/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/18:0/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/18:0/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/18:0/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005370
TG(16:0/18:0/20:4(5Z,8Z,11Z,14Z)) ; HMDB05370	TG(16:0/18:0/20:4(5Z,8Z,11Z,14Z)), also known as tag(16:0/18:0/20:4n6) or tracylglycerol(16:0/18:0/20:4), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/18:0/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/18:0/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/18:0/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/18:0/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/18:0/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005370

TG(16:0/18:1(9Z)/18:2(9Z,12Z)) ; HMDB0005384	TG(16:0/18:1(9Z)/18:2(9Z,12Z)), also known as tag(16:0/18:1/18:2) or tag(52:3), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/18:1(9Z)/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/18:1(9Z)/18:2(9Z,12Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/18:1(9Z)/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/18:1(9Z)/18:2(9Z,12Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/18:1(9Z)/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005384
TG(16:0/18:1(9Z)/18:2(9Z,12Z)) ; HMDB05384	TG(16:0/18:1(9Z)/18:2(9Z,12Z)), also known as tag(16:0/18:1/18:2) or tag(52:3), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/18:1(9Z)/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/18:1(9Z)/18:2(9Z,12Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/18:1(9Z)/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/18:1(9Z)/18:2(9Z,12Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/18:1(9Z)/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005384

TG(16:0/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB0005385	TG(16:0/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(16:0/18:1/20:4) or 1-palmitoyl-2-oleoyl-3-arachidonoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005385
TG(16:0/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB05385	TG(16:0/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(16:0/18:1/20:4) or 1-palmitoyl-2-oleoyl-3-arachidonoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005385

TG(16:0/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB0005391	TG(16:0/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(16:0/18:2/20:4) or 1-palmitoyl-2-linoleoyl-3-arachidonoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005391
TG(16:0/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB05391	TG(16:0/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(16:0/18:2/20:4) or 1-palmitoyl-2-linoleoyl-3-arachidonoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005391

TG(16:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB0005392	TG(16:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(16:0/20:4/20:4) or 1-palmitoyl-2-arachidonoyl-3-arachidonoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005392

TG(16:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB05392	TG(16:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(16:0/20:4/20:4) or 1-palmitoyl-2-arachidonoyl-3-arachidonoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005392
TG(16:1(9Z)/14:0/16:1(9Z)) ; HMDB0010419	TG(16:1(9Z)/14:0/16:1(9Z)), also known as tag(16:1/14:0/16:1) or tag(46:2), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:1(9Z)/14:0/16:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:1(9Z)/14:0/16:1(9Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, TG(16:1(9Z)/14:0/16:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:1(9Z)/14:0/16:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:1(9Z)/14:0/16:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0010419

TG(16:1(9Z)/14:0/16:1(9Z)) ; HMDB10419	TG(16:1(9Z)/14:0/16:1(9Z)), also known as tag(16:1/14:0/16:1) or tag(46:2), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:1(9Z)/14:0/16:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:1(9Z)/14:0/16:1(9Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, TG(16:1(9Z)/14:0/16:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:1(9Z)/14:0/16:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:1(9Z)/14:0/16:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0010419
TG(16:1(9Z)/16:1(9Z)/16:1(9Z)) ; HMDB0005432	TG(16:1(9Z)/16:1(9Z)/16:1(9Z)), also known as TG or 1,2,3-tri-(9Z)-hexadecenoylglycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. Thus, TG(16:1(9Z)/16:1(9Z)/16:1(9Z)) is considered to be a triradylglycerol lipid molecule. TG(16:1(9Z)/16:1(9Z)/16:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:1(9Z)/16:1(9Z)/16:1(9Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:1(9Z)/16:1(9Z)/16:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. TG(16:1(9Z)/16:1(9Z)/16:1(9Z)) exists in all eukaryotes, ranging from yeast to humans. In humans, TG(16:1(9Z)/16:1(9Z)/16:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:1(9Z)/16:1(9Z)/16:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005432

TG(16:1(9Z)/16:1(9Z)/16:1(9Z)) ; HMDB05432	TG(16:1(9Z)/16:1(9Z)/16:1(9Z)), also known as TG or 1,2,3-tri-(9Z)-hexadecenoylglycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. Thus, TG(16:1(9Z)/16:1(9Z)/16:1(9Z)) is considered to be a triradylglycerol lipid molecule. TG(16:1(9Z)/16:1(9Z)/16:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:1(9Z)/16:1(9Z)/16:1(9Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:1(9Z)/16:1(9Z)/16:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. TG(16:1(9Z)/16:1(9Z)/16:1(9Z)) exists in all eukaryotes, ranging from yeast to humans. In humans, TG(16:1(9Z)/16:1(9Z)/16:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:1(9Z)/16:1(9Z)/16:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005432
TG(16:1(9Z)/16:1(9Z)/18:1(9Z)) ; HMDB0005433	TG(16:1(9Z)/16:1(9Z)/18:1(9Z)), also known as tag(16:1/16:1/18:1) or tag(50:3), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:1(9Z)/16:1(9Z)/18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:1(9Z)/16:1(9Z)/18:1(9Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:1(9Z)/16:1(9Z)/18:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:1(9Z)/16:1(9Z)/18:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:1(9Z)/16:1(9Z)/18:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005433

TG(16:1(9Z)/16:1(9Z)/18:1(9Z)) ; HMDB05433	TG(16:1(9Z)/16:1(9Z)/18:1(9Z)), also known as tag(16:1/16:1/18:1) or tag(50:3), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:1(9Z)/16:1(9Z)/18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:1(9Z)/16:1(9Z)/18:1(9Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:1(9Z)/16:1(9Z)/18:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:1(9Z)/16:1(9Z)/18:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:1(9Z)/16:1(9Z)/18:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005433
TG(16:1(9Z)/16:1(9Z)/18:2(9Z,12Z)) ; HMDB0005435	TG(16:1(9Z)/16:1(9Z)/18:2(9Z,12Z)), also known as tag(16:1/16:1/18:2) or tag(50:4), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:1(9Z)/16:1(9Z)/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:1(9Z)/16:1(9Z)/18:2(9Z,12Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:1(9Z)/16:1(9Z)/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:1(9Z)/16:1(9Z)/18:2(9Z,12Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:1(9Z)/16:1(9Z)/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005435

TG(16:1(9Z)/16:1(9Z)/18:2(9Z,12Z)) ; HMDB05435	TG(16:1(9Z)/16:1(9Z)/18:2(9Z,12Z)), also known as tag(16:1/16:1/18:2) or tag(50:4), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:1(9Z)/16:1(9Z)/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:1(9Z)/16:1(9Z)/18:2(9Z,12Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:1(9Z)/16:1(9Z)/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:1(9Z)/16:1(9Z)/18:2(9Z,12Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:1(9Z)/16:1(9Z)/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005435
TG(16:1(9Z)/16:1(9Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB0005436	TG(16:1(9Z)/16:1(9Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(16:1/16:1/20:4) or tag(52:6), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:1(9Z)/16:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:1(9Z)/16:1(9Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:1(9Z)/16:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:1(9Z)/16:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:1(9Z)/16:1(9Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005436

TG(16:1(9Z)/16:1(9Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB05436	TG(16:1(9Z)/16:1(9Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(16:1/16:1/20:4) or tag(52:6), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:1(9Z)/16:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:1(9Z)/16:1(9Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:1(9Z)/16:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:1(9Z)/16:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:1(9Z)/16:1(9Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005436
TG(16:1(9Z)/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB0005447	TG(16:1(9Z)/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(16:1/18:2/20:4) or 1-palmitoleoyl-2-linoleoyl-3-arachidonoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:1(9Z)/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:1(9Z)/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:1(9Z)/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:1(9Z)/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:1(9Z)/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005447

TG(16:1(9Z)/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB05447	TG(16:1(9Z)/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(16:1/18:2/20:4) or 1-palmitoleoyl-2-linoleoyl-3-arachidonoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:1(9Z)/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:1(9Z)/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:1(9Z)/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:1(9Z)/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:1(9Z)/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005447

TG(16:1(9Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB0005448	TG(16:1(9Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(16:1/20:4/20:4) or 1-palmitoleoyl-2-arachidonoyl-3-arachidonoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:1(9Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:1(9Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:1(9Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:1(9Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:1(9Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005448

TG(16:1(9Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB05448	TG(16:1(9Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(16:1/20:4/20:4) or 1-palmitoleoyl-2-arachidonoyl-3-arachidonoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(16:1(9Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(16:1(9Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(16:1(9Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(16:1(9Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(16:1(9Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005448
TG(18:0/18:0/18:1(9Z)) ; HMDB0005395	TG(18:0/18:0/18:1(9Z)), also known as tag(54:1) or tracylglycerol(54:1), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:0/18:0/18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:0/18:0/18:1(9Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:0/18:0/18:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:0/18:0/18:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:0/18:0/18:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005395

TG(18:0/18:0/18:1(9Z)) ; HMDB05395	TG(18:0/18:0/18:1(9Z)), also known as tag(54:1) or tracylglycerol(54:1), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:0/18:0/18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:0/18:0/18:1(9Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:0/18:0/18:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:0/18:0/18:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:0/18:0/18:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005395
TG(18:0/18:0/20:1(11Z)) ; HMDB0005396	TG(18:0/18:0/20:1(11Z)), also known as tag(18:0/18:0/20:1n9) or tag(56:1), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:0/18:0/20:1(11Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:0/18:0/20:1(11Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:0/18:0/20:1(11Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:0/18:0/20:1(11Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:0/18:0/20:1(11Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005396

TG(18:0/18:0/20:1(11Z)) ; HMDB05396	TG(18:0/18:0/20:1(11Z)), also known as tag(18:0/18:0/20:1n9) or tag(56:1), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:0/18:0/20:1(11Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:0/18:0/20:1(11Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:0/18:0/20:1(11Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:0/18:0/20:1(11Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:0/18:0/20:1(11Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005396
TG(18:0/18:0/20:4(5Z,8Z,11Z,14Z)) ; HMDB0005398	TG(18:0/18:0/20:4(5Z,8Z,11Z,14Z)), also known as tag(18:0/18:0/20:4n6) or tracylglycerol(18:0/18:0/20:4), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:0/18:0/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:0/18:0/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:0/18:0/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:0/18:0/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:0/18:0/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005398

TG(18:0/18:0/20:4(5Z,8Z,11Z,14Z)) ; HMDB05398	TG(18:0/18:0/20:4(5Z,8Z,11Z,14Z)), also known as tag(18:0/18:0/20:4n6) or tracylglycerol(18:0/18:0/20:4), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:0/18:0/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:0/18:0/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:0/18:0/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:0/18:0/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:0/18:0/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005398
TG(18:0/18:1(9Z)/18:1(9Z)) ; HMDB0005403	TG(18:0/18:1(9Z)/18:1(9Z)), also known as tag(18:0/18:1/18:1) or tag(54:2), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:0/18:1(9Z)/18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:0/18:1(9Z)/18:1(9Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:0/18:1(9Z)/18:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:0/18:1(9Z)/18:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:0/18:1(9Z)/18:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005403

TG(18:0/18:1(9Z)/18:1(9Z)) ; HMDB05403	TG(18:0/18:1(9Z)/18:1(9Z)), also known as tag(18:0/18:1/18:1) or tag(54:2), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:0/18:1(9Z)/18:1(9Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:0/18:1(9Z)/18:1(9Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:0/18:1(9Z)/18:1(9Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:0/18:1(9Z)/18:1(9Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:0/18:1(9Z)/18:1(9Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005403
TG(18:0/18:1(9Z)/18:2(9Z,12Z)) ; HMDB0005405	TG(18:0/18:1(9Z)/18:2(9Z,12Z)), also known as tag(18:0/18:1/18:2) or tag(54:3), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:0/18:1(9Z)/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:0/18:1(9Z)/18:2(9Z,12Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:0/18:1(9Z)/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:0/18:1(9Z)/18:2(9Z,12Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:0/18:1(9Z)/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005405

TG(18:0/18:1(9Z)/18:2(9Z,12Z)) ; HMDB05405	TG(18:0/18:1(9Z)/18:2(9Z,12Z)), also known as tag(18:0/18:1/18:2) or tag(54:3), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:0/18:1(9Z)/18:2(9Z,12Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:0/18:1(9Z)/18:2(9Z,12Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:0/18:1(9Z)/18:2(9Z,12Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:0/18:1(9Z)/18:2(9Z,12Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:0/18:1(9Z)/18:2(9Z,12Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005405
TG(18:0/18:1(9Z)/20:1(11Z)) ; HMDB0005404	TG(18:0/18:1(9Z)/20:1(11Z)), also known as tag(18:0/18:1/20:1) or tag(56:2), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:0/18:1(9Z)/20:1(11Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:0/18:1(9Z)/20:1(11Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:0/18:1(9Z)/20:1(11Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:0/18:1(9Z)/20:1(11Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:0/18:1(9Z)/20:1(11Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005404

TG(18:0/18:1(9Z)/20:1(11Z)) ; HMDB05404	TG(18:0/18:1(9Z)/20:1(11Z)), also known as tag(18:0/18:1/20:1) or tag(56:2), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:0/18:1(9Z)/20:1(11Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:0/18:1(9Z)/20:1(11Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:0/18:1(9Z)/20:1(11Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:0/18:1(9Z)/20:1(11Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:0/18:1(9Z)/20:1(11Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005404
TG(18:0/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB0005406	TG(18:0/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(18:0/18:1/20:4) or 1-stearoyl-2-oleoyl-3-arachidonoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:0/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:0/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:0/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:0/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:0/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005406

TG(18:0/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB05406	TG(18:0/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(18:0/18:1/20:4) or 1-stearoyl-2-oleoyl-3-arachidonoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:0/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:0/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:0/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:0/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:0/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005406
TG(18:0/18:2(9Z,12Z)/20:1(11Z)) ; HMDB0005410	TG(18:0/18:2(9Z,12Z)/20:1(11Z)), also known as tag(18:0/18:2/20:1) or tag(56:3), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:0/18:2(9Z,12Z)/20:1(11Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:0/18:2(9Z,12Z)/20:1(11Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:0/18:2(9Z,12Z)/20:1(11Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:0/18:2(9Z,12Z)/20:1(11Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:0/18:2(9Z,12Z)/20:1(11Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005410

TG(18:0/18:2(9Z,12Z)/20:1(11Z)) ; HMDB05410	TG(18:0/18:2(9Z,12Z)/20:1(11Z)), also known as tag(18:0/18:2/20:1) or tag(56:3), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:0/18:2(9Z,12Z)/20:1(11Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:0/18:2(9Z,12Z)/20:1(11Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:0/18:2(9Z,12Z)/20:1(11Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:0/18:2(9Z,12Z)/20:1(11Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:0/18:2(9Z,12Z)/20:1(11Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005410
TG(18:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB0005413	TG(18:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(18:0/20:4/20:4) or 1-stearoyl-2-arachidonoyl-3-arachidonoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005413

TG(18:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB05413	TG(18:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(18:0/20:4/20:4) or 1-stearoyl-2-arachidonoyl-3-arachidonoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:0/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005413
TG(18:1(9Z)/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB0005456	TG(18:1(9Z)/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(18:1/18:1/20:4) or 1-oleoyl-2-oleoyl-3-arachidonoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:1(9Z)/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:1(9Z)/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:1(9Z)/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:1(9Z)/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:1(9Z)/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005456

TG(18:1(9Z)/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB05456	TG(18:1(9Z)/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(18:1/18:1/20:4) or 1-oleoyl-2-oleoyl-3-arachidonoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:1(9Z)/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:1(9Z)/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:1(9Z)/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:1(9Z)/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:1(9Z)/18:1(9Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005456
TG(18:1(9Z)/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB0005462	TG(18:1(9Z)/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(18:1/18:2/20:4) or 1-oleoyl-2-linoleoyl-3-arachidonoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:1(9Z)/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:1(9Z)/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:1(9Z)/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:1(9Z)/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:1(9Z)/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005462

TG(18:1(9Z)/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB05462	TG(18:1(9Z)/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(18:1/18:2/20:4) or 1-oleoyl-2-linoleoyl-3-arachidonoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:1(9Z)/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:1(9Z)/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:1(9Z)/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:1(9Z)/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:1(9Z)/18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005462
TG(18:1(9Z)/20:1(11Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB0005458	TG(18:1(9Z)/20:1(11Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(18:1/20:1/20:4) or 1-oleoyl-2-eicosenoyl-3-arachidonoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:1(9Z)/20:1(11Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:1(9Z)/20:1(11Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:1(9Z)/20:1(11Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:1(9Z)/20:1(11Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:1(9Z)/20:1(11Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005458

TG(18:1(9Z)/20:1(11Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB05458	TG(18:1(9Z)/20:1(11Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(18:1/20:1/20:4) or 1-oleoyl-2-eicosenoyl-3-arachidonoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:1(9Z)/20:1(11Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:1(9Z)/20:1(11Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:1(9Z)/20:1(11Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:1(9Z)/20:1(11Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:1(9Z)/20:1(11Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005458
TG(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB0005463	TG(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(18:1/20:4/20:4) or 1-oleoyl-2-arachidonoyl-3-arachidonoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005463

TG(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB05463	TG(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(18:1/20:4/20:4) or 1-oleoyl-2-arachidonoyl-3-arachidonoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:1(9Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005463
TG(18:2(9Z,12Z)/14:0/18:3(9Z,12Z,15Z)) ; HMDB0010471	TG(18:2(9Z,12Z)/14:0/18:3(9Z,12Z,15Z)), also known as tag(18:2/14:0/18:3) or tag(50:5), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:2(9Z,12Z)/14:0/18:3(9Z,12Z,15Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:2(9Z,12Z)/14:0/18:3(9Z,12Z,15Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, TG(18:2(9Z,12Z)/14:0/18:3(9Z,12Z,15Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:2(9Z,12Z)/14:0/18:3(9Z,12Z,15Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:2(9Z,12Z)/14:0/18:3(9Z,12Z,15Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0010471

TG(18:2(9Z,12Z)/14:0/18:3(9Z,12Z,15Z)) ; HMDB10471	TG(18:2(9Z,12Z)/14:0/18:3(9Z,12Z,15Z)), also known as tag(18:2/14:0/18:3) or tag(50:5), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:2(9Z,12Z)/14:0/18:3(9Z,12Z,15Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:2(9Z,12Z)/14:0/18:3(9Z,12Z,15Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, TG(18:2(9Z,12Z)/14:0/18:3(9Z,12Z,15Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:2(9Z,12Z)/14:0/18:3(9Z,12Z,15Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:2(9Z,12Z)/14:0/18:3(9Z,12Z,15Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0010471
TG(18:2(9Z,12Z)/20:1(11Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB0005471	TG(18:2(9Z,12Z)/20:1(11Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(18:2/20:1/20:4) or 1-linoleoyl-2-eicosenoyl-3-arachidonoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:2(9Z,12Z)/20:1(11Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:2(9Z,12Z)/20:1(11Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:2(9Z,12Z)/20:1(11Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:2(9Z,12Z)/20:1(11Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:2(9Z,12Z)/20:1(11Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005471

TG(18:2(9Z,12Z)/20:1(11Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB05471	TG(18:2(9Z,12Z)/20:1(11Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(18:2/20:1/20:4) or 1-linoleoyl-2-eicosenoyl-3-arachidonoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:2(9Z,12Z)/20:1(11Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:2(9Z,12Z)/20:1(11Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:2(9Z,12Z)/20:1(11Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:2(9Z,12Z)/20:1(11Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:2(9Z,12Z)/20:1(11Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005471

TG(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB0005476	TG(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(18:2/20:4/20:4) or 1-linoleoyl-2-arachidonoyl-3-arachidonoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005476

TG(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB05476	TG(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)), also known as tag(18:2/20:4/20:4) or 1-linoleoyl-2-arachidonoyl-3-arachidonoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:2(9Z,12Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005476

TG(18:3(9Z,12Z,15Z)/14:0/18:3(9Z,12Z,15Z)) ; HMDB0010497	TG(18:3(9Z,12Z,15Z)/14:0/18:3(9Z,12Z,15Z)), also known as TG(18:3/14:0/18:3) or triacylglycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:3(9Z,12Z,15Z)/14:0/18:3(9Z,12Z,15Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:3(9Z,12Z,15Z)/14:0/18:3(9Z,12Z,15Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, TG(18:3(9Z,12Z,15Z)/14:0/18:3(9Z,12Z,15Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:3(9Z,12Z,15Z)/14:0/18:3(9Z,12Z,15Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:3(9Z,12Z,15Z)/14:0/18:3(9Z,12Z,15Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0010497
TG(18:3(9Z,12Z,15Z)/14:0/18:3(9Z,12Z,15Z)) ; HMDB10497	TG(18:3(9Z,12Z,15Z)/14:0/18:3(9Z,12Z,15Z)), also known as TG(18:3/14:0/18:3) or triacylglycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:3(9Z,12Z,15Z)/14:0/18:3(9Z,12Z,15Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:3(9Z,12Z,15Z)/14:0/18:3(9Z,12Z,15Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, TG(18:3(9Z,12Z,15Z)/14:0/18:3(9Z,12Z,15Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:3(9Z,12Z,15Z)/14:0/18:3(9Z,12Z,15Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:3(9Z,12Z,15Z)/14:0/18:3(9Z,12Z,15Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0010497

TG(18:3(9Z,12Z,15Z)/14:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) ; HMDB0010498	TG(18:3(9Z,12Z,15Z)/14:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)), also known as 1-a-linolenoyl-2-myristoyl-3-docosahexaenoyl-glycerol or tag(18:3/14:0/22:6), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:3(9Z,12Z,15Z)/14:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:3(9Z,12Z,15Z)/14:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, TG(18:3(9Z,12Z,15Z)/14:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:3(9Z,12Z,15Z)/14:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:3(9Z,12Z,15Z)/14:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0010498

TG(18:3(9Z,12Z,15Z)/14:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) ; HMDB10498	TG(18:3(9Z,12Z,15Z)/14:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)), also known as 1-a-linolenoyl-2-myristoyl-3-docosahexaenoyl-glycerol or tag(18:3/14:0/22:6), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:3(9Z,12Z,15Z)/14:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:3(9Z,12Z,15Z)/14:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, TG(18:3(9Z,12Z,15Z)/14:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:3(9Z,12Z,15Z)/14:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:3(9Z,12Z,15Z)/14:0/22:6(4Z,7Z,10Z,13Z,16Z,19Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0010498

TG(18:3(9Z,12Z,15Z)/20:4(5Z,8Z,11Z,14Z)/18:3(9Z,12Z,15Z)) ; HMDB0010513	TG(18:3(9Z,12Z,15Z)/20:4(5Z,8Z,11Z,14Z)/18:3(9Z,12Z,15Z)), also known as tag(18:3/20:4/18:3) or 1-a-linolenoyl-2-arachidonoyl-3-a-linolenoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:3(9Z,12Z,15Z)/20:4(5Z,8Z,11Z,14Z)/18:3(9Z,12Z,15Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:3(9Z,12Z,15Z)/20:4(5Z,8Z,11Z,14Z)/18:3(9Z,12Z,15Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, TG(18:3(9Z,12Z,15Z)/20:4(5Z,8Z,11Z,14Z)/18:3(9Z,12Z,15Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:3(9Z,12Z,15Z)/20:4(5Z,8Z,11Z,14Z)/18:3(9Z,12Z,15Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:3(9Z,12Z,15Z)/20:4(5Z,8Z,11Z,14Z)/18:3(9Z,12Z,15Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0010513

TG(18:3(9Z,12Z,15Z)/20:4(5Z,8Z,11Z,14Z)/18:3(9Z,12Z,15Z)) ; HMDB10513	TG(18:3(9Z,12Z,15Z)/20:4(5Z,8Z,11Z,14Z)/18:3(9Z,12Z,15Z)), also known as tag(18:3/20:4/18:3) or 1-a-linolenoyl-2-arachidonoyl-3-a-linolenoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(18:3(9Z,12Z,15Z)/20:4(5Z,8Z,11Z,14Z)/18:3(9Z,12Z,15Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:3(9Z,12Z,15Z)/20:4(5Z,8Z,11Z,14Z)/18:3(9Z,12Z,15Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, TG(18:3(9Z,12Z,15Z)/20:4(5Z,8Z,11Z,14Z)/18:3(9Z,12Z,15Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:3(9Z,12Z,15Z)/20:4(5Z,8Z,11Z,14Z)/18:3(9Z,12Z,15Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(18:3(9Z,12Z,15Z)/20:4(5Z,8Z,11Z,14Z)/18:3(9Z,12Z,15Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0010513

TG(20:4(5Z,8Z,11Z,14Z)/14:0/18:3(9Z,12Z,15Z)) ; HMDB0010517	TG(20:4(5Z,8Z,11Z,14Z)/14:0/18:3(9Z,12Z,15Z)), also known as tag(20:4/14:0/18:3) or 1-arachidonoyl-2-myristoyl-3-a-linolenoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(20:4(5Z,8Z,11Z,14Z)/14:0/18:3(9Z,12Z,15Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(20:4(5Z,8Z,11Z,14Z)/14:0/18:3(9Z,12Z,15Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, TG(20:4(5Z,8Z,11Z,14Z)/14:0/18:3(9Z,12Z,15Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(20:4(5Z,8Z,11Z,14Z)/14:0/18:3(9Z,12Z,15Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(20:4(5Z,8Z,11Z,14Z)/14:0/18:3(9Z,12Z,15Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0010517

TG(20:4(5Z,8Z,11Z,14Z)/14:0/18:3(9Z,12Z,15Z)) ; HMDB10517	TG(20:4(5Z,8Z,11Z,14Z)/14:0/18:3(9Z,12Z,15Z)), also known as tag(20:4/14:0/18:3) or 1-arachidonoyl-2-myristoyl-3-a-linolenoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(20:4(5Z,8Z,11Z,14Z)/14:0/18:3(9Z,12Z,15Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(20:4(5Z,8Z,11Z,14Z)/14:0/18:3(9Z,12Z,15Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, TG(20:4(5Z,8Z,11Z,14Z)/14:0/18:3(9Z,12Z,15Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(20:4(5Z,8Z,11Z,14Z)/14:0/18:3(9Z,12Z,15Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(20:4(5Z,8Z,11Z,14Z)/14:0/18:3(9Z,12Z,15Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0010517

TG(20:4(5Z,8Z,11Z,14Z)/14:0/20:4(5Z,8Z,11Z,14Z)) ; HMDB0010518	TG(20:4(5Z,8Z,11Z,14Z)/14:0/20:4(5Z,8Z,11Z,14Z)), also known as tag(20:4/14:0/20:4) or 1-arachidonoyl-2-myristoyl-3-arachidonoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(20:4(5Z,8Z,11Z,14Z)/14:0/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(20:4(5Z,8Z,11Z,14Z)/14:0/20:4(5Z,8Z,11Z,14Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, TG(20:4(5Z,8Z,11Z,14Z)/14:0/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(20:4(5Z,8Z,11Z,14Z)/14:0/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(20:4(5Z,8Z,11Z,14Z)/14:0/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0010518

TG(20:4(5Z,8Z,11Z,14Z)/14:0/20:4(5Z,8Z,11Z,14Z)) ; HMDB10518	TG(20:4(5Z,8Z,11Z,14Z)/14:0/20:4(5Z,8Z,11Z,14Z)), also known as tag(20:4/14:0/20:4) or 1-arachidonoyl-2-myristoyl-3-arachidonoyl-glycerol, belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. TG(20:4(5Z,8Z,11Z,14Z)/14:0/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(20:4(5Z,8Z,11Z,14Z)/14:0/20:4(5Z,8Z,11Z,14Z)) has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, TG(20:4(5Z,8Z,11Z,14Z)/14:0/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(20:4(5Z,8Z,11Z,14Z)/14:0/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(20:4(5Z,8Z,11Z,14Z)/14:0/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0010518

TG(20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)/18:3(9Z,12Z,15Z)) ; HMDB0010531	TG(18:3(9Z,12Z,15Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z))[iso3], also known as 1-arachidonoyl-2-arachidonoyl-3-a-linolenoyl-glycerol or tag(20:4/20:4/18:3), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. Thus, TG(18:3(9Z,12Z,15Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z))[iso3] is considered to be a triradylglycerol lipid molecule. TG(18:3(9Z,12Z,15Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z))[iso3] is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:3(9Z,12Z,15Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z))[iso3] has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, TG(18:3(9Z,12Z,15Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z))[iso3] is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:3(9Z,12Z,15Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z))[iso3] is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)/18:3(9Z,12Z,15Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0010531

TG(20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)/18:3(9Z,12Z,15Z)) ; HMDB10531	TG(18:3(9Z,12Z,15Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z))[iso3], also known as 1-arachidonoyl-2-arachidonoyl-3-a-linolenoyl-glycerol or tag(20:4/20:4/18:3), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. Thus, TG(18:3(9Z,12Z,15Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z))[iso3] is considered to be a triradylglycerol lipid molecule. TG(18:3(9Z,12Z,15Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z))[iso3] is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(18:3(9Z,12Z,15Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z))[iso3] has been found throughout all human tissues, and has also been primarily detected in blood. Within the cell, TG(18:3(9Z,12Z,15Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z))[iso3] is primarily located in the membrane (predicted from logP) and adiposome. In humans, TG(18:3(9Z,12Z,15Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z))[iso3] is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)/18:3(9Z,12Z,15Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0010531

TG(20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB0005478	TG(20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)), also known as 1,2,3-tri-(5,8,11,14-eicosatetraenoyl)glycerol or TG(20:4/20:4/20:4), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. Thus, TG(20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a triradylglycerol lipid molecule. TG(20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. TG(20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from DG(20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)/0:0) and arachidonyl-CoA; which is mediated by the enzyme diacylglycerol O-acyltransferase. In humans, TG(20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005478

TG(20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) ; HMDB05478	TG(20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)), also known as 1,2,3-tri-(5,8,11,14-eicosatetraenoyl)glycerol or TG(20:4/20:4/20:4), belongs to the class of organic compounds known as triacylglycerols. These are glycerides consisting of three fatty acid chains covalently bonded to a glycerol molecule through ester linkages. Thus, TG(20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a triradylglycerol lipid molecule. TG(20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is considered to be a practically insoluble (in water) and relatively neutral molecule. TG(20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) has been found in human adipose tissue tissue, and has also been primarily detected in blood. Within the cell, TG(20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is primarily located in the membrane (predicted from logP) and adiposome. TG(20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) can be biosynthesized from DG(20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)/0:0) and arachidonyl-CoA; which is mediated by the enzyme diacylglycerol O-acyltransferase. In humans, TG(20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) is involved in the metabolic disorder called de novo triacylglycerol biosynthesis TG(20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)/20:4(5Z,8Z,11Z,14Z)) pathway.	http://www.hmdb.ca/metabolites/HMDB0005478

Theobromine ; HMDB0002825	Theobromine, also known as diurobromine, belongs to the class of organic compounds known as xanthines. These are purine derivatives with a ketone group conjugated at carbons 2 and 6 of the purine moiety. Theobromine exists as a solid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). Theobromine has been found in human liver and kidney tissues, and has also been detected in most biofluids, including urine, cerebrospinal fluid, blood, and feces. Within the cell, theobromine is primarily located in the cytoplasm. Theobromine participates in a number of enzymatic reactions. In particular, Theobromine and formaldehyde can be biosynthesized from caffeine through the action of the enzymes cytochrome P450 1A2 and cytochrome P450 2E1. In addition, Theobromine can be converted into 3,7-dimethyluric acid through the action of the enzyme xanthine dehydrogenase/oxidase. In humans, theobromine is involved in the caffeine metabolism pathway.	http://www.hmdb.ca/metabolites/HMDB0002825

Theophylline ; HMDB0001889	Theophylline, also known as uniphyl or aerolate, belongs to the class of organic compounds known as xanthines. These are purine derivatives with a ketone group conjugated at carbons 2 and 6 of the purine moiety. Theophylline is a drug which is used for the treatment of the symptoms and reversible airflow obstruction associated with chronic asthma and other chronic lung diseases, such as emphysema and chronic bronchitis. Theophylline exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Theophylline has been found throughout most human tissues, and has also been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid. Within the cell, theophylline is primarily located in the cytoplasm. Theophylline participates in a number of enzymatic reactions. In particular, Theophylline and formaldehyde can be biosynthesized from caffeine through its interaction with the enzymes cytochrome P450 1A2, cytochrome P450 3A4, cytochrome P450 2C8, cytochrome P450 2C9, and cytochrome P450 2E1. In addition, Theophylline can be converted into 1-methylxanthine and formaldehyde; which is catalyzed by the enzyme cytochrome P450 1A2. In humans, theophylline is involved in the caffeine metabolism pathway. Theophylline is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001889

Theophylline ; HMDB01889	Theophylline, also known as uniphyl or aerolate, belongs to the class of organic compounds known as xanthines. These are purine derivatives with a ketone group conjugated at carbons 2 and 6 of the purine moiety. Theophylline is a drug which is used for the treatment of the symptoms and reversible airflow obstruction associated with chronic asthma and other chronic lung diseases, such as emphysema and chronic bronchitis. Theophylline exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Theophylline has been found throughout most human tissues, and has also been detected in multiple biofluids, such as urine, blood, and cerebrospinal fluid. Within the cell, theophylline is primarily located in the cytoplasm. Theophylline participates in a number of enzymatic reactions. In particular, Theophylline and formaldehyde can be biosynthesized from caffeine through its interaction with the enzymes cytochrome P450 1A2, cytochrome P450 3A4, cytochrome P450 2C8, cytochrome P450 2C9, and cytochrome P450 2E1. In addition, Theophylline can be converted into 1-methylxanthine and formaldehyde; which is catalyzed by the enzyme cytochrome P450 1A2. In humans, theophylline is involved in the caffeine metabolism pathway. Theophylline is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0001889

Thiamine ; HMDB0000235	Thiamine, also known as vitamin B1 or aneurin, belongs to the class of organic compounds known as thiamines. Thiamines are compounds containing a thiamine moiety, which is structurally characterized by a 3-[(4-Amino-2-methyl-pyrimidin-5-yl)methyl]-4-methyl-thiazol-5-yl backbone. Thiamine is a drug which is used for the treatment of thiamine and niacin deficiency states, korsakov's alcoholic psychosis, wernicke-korsakov syndrome, delirium, and peripheral neuritis. Thiamine exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Thiamine has been found throughout most human tissues, and has also been primarily detected in saliva, urine, blood, and cerebrospinal fluid. Within the cell, thiamine is primarily located in the membrane (predicted from logP), mitochondria and myelin sheath. Thiamine exists in all eukaryotes, ranging from yeast to humans. Thiamine participates in a number of enzymatic reactions. In particular, Thiamine can be converted into thiamine pyrophosphate; which is catalyzed by the enzyme thiamin pyrophosphokinase. Furthermore, Thiamine can be converted into thiamine; which is mediated by the enzyme thiamine transporter 1. Furthermore, Thiamine can be biosynthesized from thiamine monophosphate; which is mediated by the enzyme acid phosphatases. Finally, Thiamine can be converted into thiamine pyrophosphate; which is catalyzed by the enzyme thiamin pyrophosphokinase. In humans, thiamine is involved in the metabolic disorder called the thiamine metabolism pathway. Thiamine is a bitter tasting compound that can be found in a number of food items such as coffee, cocktail, garden cress, and white sucker. This makes thiamine a potential biomarker for the consumption of these food products. Thiamine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000235

Thiamine ; HMDB00235	Thiamine, also known as vitamin B1 or aneurin, belongs to the class of organic compounds known as thiamines. Thiamines are compounds containing a thiamine moiety, which is structurally characterized by a 3-[(4-Amino-2-methyl-pyrimidin-5-yl)methyl]-4-methyl-thiazol-5-yl backbone. Thiamine is a drug which is used for the treatment of thiamine and niacin deficiency states, korsakov's alcoholic psychosis, wernicke-korsakov syndrome, delirium, and peripheral neuritis. Thiamine exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Thiamine has been found throughout most human tissues, and has also been primarily detected in saliva, urine, blood, and cerebrospinal fluid. Within the cell, thiamine is primarily located in the membrane (predicted from logP), mitochondria and myelin sheath. Thiamine exists in all eukaryotes, ranging from yeast to humans. Thiamine participates in a number of enzymatic reactions. In particular, Thiamine can be converted into thiamine pyrophosphate; which is catalyzed by the enzyme thiamin pyrophosphokinase. Furthermore, Thiamine can be converted into thiamine; which is mediated by the enzyme thiamine transporter 1. Furthermore, Thiamine can be biosynthesized from thiamine monophosphate; which is mediated by the enzyme acid phosphatases. Finally, Thiamine can be converted into thiamine pyrophosphate; which is catalyzed by the enzyme thiamin pyrophosphokinase. In humans, thiamine is involved in the metabolic disorder called the thiamine metabolism pathway. Thiamine is a bitter tasting compound that can be found in a number of food items such as coffee, cocktail, garden cress, and white sucker. This makes thiamine a potential biomarker for the consumption of these food products. Thiamine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000235

Threonic acid ; HMDB0000943	Threonic acid, also known as threonate or MMFS-01, belongs to the class of organic compounds known as sugar acids and derivatives. Sugar acids and derivatives are compounds containing a saccharide unit which bears a carboxylic acid group. Threonic acid is soluble (in water) and a weakly acidic compound (based on its pKa). Threonic acid has been detected in most biofluids, including sweat, feces, saliva, and blood. Within the cell, threonic acid is primarily located in the cytoplasm. Threonic acid can be converted into 4-phospho-D-threonic acid.	http://www.hmdb.ca/metabolites/HMDB0000943
Thymine ; HMDB0000262	Thymine, also known as 5-methyluracil, belongs to the class of organic compounds known as hydroxypyrimidines. These are organic compounds containing a hydroxyl group attached to a pyrimidine ring. Pyrimidine is a 6-membered ring consisting of four carbon atoms and two nitrogen centers at the 1- and 3- ring positions. Thymine exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Thymine has been found in human prostate and skin tissues, and has also been detected in most biofluids, including cerebrospinal fluid, blood, saliva, and urine. Thymine exists in all eukaryotes, ranging from yeast to humans. Thymine participates in a number of enzymatic reactions. In particular, Thymine and deoxyribose 1-phosphate can be biosynthesized from thymidine through the action of the enzyme thymidine phosphorylase. In addition, Thymine can be converted into dihydrothymine; which is catalyzed by the enzyme dihydropyrimidine dehydrogenase [nadp(+)]. In humans, thymine is involved in the pyrimidine metabolism pathway. Thymine is also involved in several metabolic disorders, some of which include Beta ureidopropionase deficiency, dihydropyrimidinase deficiency, the mngie (mitochondrial neurogastrointestinal encephalopathy) pathway, and UMP synthase deficiency (orotic aciduria).	http://www.hmdb.ca/metabolites/HMDB0000262

Thymine ; HMDB00262	Thymine, also known as 5-methyluracil, belongs to the class of organic compounds known as hydroxypyrimidines. These are organic compounds containing a hydroxyl group attached to a pyrimidine ring. Pyrimidine is a 6-membered ring consisting of four carbon atoms and two nitrogen centers at the 1- and 3- ring positions. Thymine exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Thymine has been found in human prostate and skin tissues, and has also been detected in most biofluids, including cerebrospinal fluid, blood, saliva, and urine. Thymine exists in all eukaryotes, ranging from yeast to humans. Thymine participates in a number of enzymatic reactions. In particular, Thymine and deoxyribose 1-phosphate can be biosynthesized from thymidine through the action of the enzyme thymidine phosphorylase. In addition, Thymine can be converted into dihydrothymine; which is catalyzed by the enzyme dihydropyrimidine dehydrogenase [nadp(+)]. In humans, thymine is involved in the pyrimidine metabolism pathway. Thymine is also involved in several metabolic disorders, some of which include Beta ureidopropionase deficiency, dihydropyrimidinase deficiency, the mngie (mitochondrial neurogastrointestinal encephalopathy) pathway, and UMP synthase deficiency (orotic aciduria).	http://www.hmdb.ca/metabolites/HMDB0000262
Thymol Sulfate ; HMDB0062720	Thymol sulfate belongs to the class of organic compounds known as phenylsulfates. Phenylsulfates are compounds containing a sulfuric acid group conjugated to a phenyl group. Thymol sulfate can be converted into thymol.	http://www.hmdb.ca/metabolites/HMDB0062720

Thyroxine ; HMDB0000248	Thyroxine, also known as levothyroxine or T4, belongs to the class of organic compounds known as phenylalanine and derivatives. Phenylalanine and derivatives are compounds containing phenylalanine or a derivative thereof resulting from reaction of phenylalanine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. Thyroxine is a drug which is used for use alone or in combination with antithyroid agents to treat hypothyroidism, goiter, chronic lymphocytic thyroiditis, myxedema coma, and stupor. Thyroxine exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Thyroxine has been found throughout most human tissues, and has also been detected in multiple biofluids, such as urine, saliva, and blood. Within the cell, thyroxine is primarily located in the cytoplasm, membrane (predicted from logP) and myelin sheath. In humans, thyroxine is involved in the tyrosine metabolism pathway and thyroid hormone synthesis pathway.	http://www.hmdb.ca/metabolites/HMDB0000248

Thyroxine ; HMDB00248	Thyroxine, also known as levothyroxine or T4, belongs to the class of organic compounds known as phenylalanine and derivatives. Phenylalanine and derivatives are compounds containing phenylalanine or a derivative thereof resulting from reaction of phenylalanine at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. Thyroxine is a drug which is used for use alone or in combination with antithyroid agents to treat hypothyroidism, goiter, chronic lymphocytic thyroiditis, myxedema coma, and stupor. Thyroxine exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Thyroxine has been found throughout most human tissues, and has also been detected in multiple biofluids, such as urine, saliva, and blood. Within the cell, thyroxine is primarily located in the cytoplasm, membrane (predicted from logP) and myelin sheath. In humans, thyroxine is involved in the tyrosine metabolism pathway and thyroid hormone synthesis pathway.	http://www.hmdb.ca/metabolites/HMDB0000248
Tiglylcarnitine ; HMDB0002366	Tiglylcarnitine belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Tiglylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. Tiglylcarnitine has been detected in multiple biofluids, such as urine and blood. Within the cell, tiglylcarnitine is primarily located in the membrane (predicted from logP) and cytoplasm. Tiglylcarnitine has been linked to the inborn metabolic disorders including celiac disease.	http://www.hmdb.ca/metabolites/HMDB0002366

Tiglylcarnitine ; HMDB02366	Tiglylcarnitine belongs to the class of organic compounds known as acyl carnitines. These are organic compounds containing a fatty acid with the carboxylic acid attached to carnitine through an ester bond. Tiglylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule. Tiglylcarnitine has been detected in multiple biofluids, such as urine and blood. Within the cell, tiglylcarnitine is primarily located in the membrane (predicted from logP) and cytoplasm. Tiglylcarnitine has been linked to the inborn metabolic disorders including celiac disease.	http://www.hmdb.ca/metabolites/HMDB0002366
trans-2-Dodecenoylcarnitine ; HMDB0013326	3-Hydroxy-9Z-octadecenoylcarnitine belongs to the class of organic compounds known as beta hydroxy acids and derivatives. Beta hydroxy acids and derivatives are compounds containing a carboxylic acid substituted with a hydroxyl group on the C3 carbon atom. 3-Hydroxy-9Z-octadecenoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule.	http://www.hmdb.ca/metabolites/HMDB0013326
trans-2-Dodecenoylcarnitine ; HMDB13326	3-Hydroxy-9Z-octadecenoylcarnitine belongs to the class of organic compounds known as beta hydroxy acids and derivatives. Beta hydroxy acids and derivatives are compounds containing a carboxylic acid substituted with a hydroxyl group on the C3 carbon atom. 3-Hydroxy-9Z-octadecenoylcarnitine is considered to be a practically insoluble (in water) and relatively neutral molecule.	http://www.hmdb.ca/metabolites/HMDB0013326
Trans-urocanate ; HMDB0062562	Trans-urocanate is also known as (e)-3-(Imidazol-4-yl)propenoate or trans-Urocanic acid. Trans-urocanate is considered to be soluble (in water) and acidic	http://www.hmdb.ca/metabolites/HMDB0062562

Trigonelline ; HMDB0000875	Trigonelline, also known as caffearin or gynesine, belongs to the class of organic compounds known as alkaloids and derivatives. These are naturally occurring chemical compounds that contain mostly basic nitrogen atoms. This group also includes some related compounds with neutral and even weakly acidic properties. Also some synthetic compounds of similar structure are attributed to alkaloids. In addition to carbon, hydrogen and nitrogen, alkaloids may also contain oxygen, sulfur and more rarely other elements such as chlorine, bromine, and phosphorus. Trigonelline is considered to be a practically insoluble (in water) and relatively neutral molecule. Trigonelline has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, trigonelline is primarily located in the cytoplasm. Trigonelline can be biosynthesized from nicotinate. Outside of the human body, trigonelline can be found in a number of food items such as yellow bell pepper, white lupine, soft-necked garlic, and common wheat. This makes trigonelline a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000875

Trigonelline ; HMDB00875	Trigonelline, also known as caffearin or gynesine, belongs to the class of organic compounds known as alkaloids and derivatives. These are naturally occurring chemical compounds that contain mostly basic nitrogen atoms. This group also includes some related compounds with neutral and even weakly acidic properties. Also some synthetic compounds of similar structure are attributed to alkaloids. In addition to carbon, hydrogen and nitrogen, alkaloids may also contain oxygen, sulfur and more rarely other elements such as chlorine, bromine, and phosphorus. Trigonelline is considered to be a practically insoluble (in water) and relatively neutral molecule. Trigonelline has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, trigonelline is primarily located in the cytoplasm. Trigonelline can be biosynthesized from nicotinate. Outside of the human body, trigonelline can be found in a number of food items such as yellow bell pepper, white lupine, soft-necked garlic, and common wheat. This makes trigonelline a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000875

Trimethylamine N-oxide ; HMDB0000925	Trimethylamine N-oxide, also known as (CH3)3no or tmao, belongs to the class of organic compounds known as trialkyl amine oxides. These are hydrocarbyl derivatives of the aminoxide anion, with the general formula R3N+[O-] or R3N=O, where R is an alkyl group. Trimethylamine N-oxide exists as a solid, soluble (in water), and a strong basic compound (based on its pKa). Trimethylamine N-oxide has been found in human epidermis, liver and kidney tissues, and has also been primarily detected in urine, feces, saliva, and blood. Within the cell, trimethylamine N-oxide is primarily located in the cytoplasm. Trimethylamine N-oxide can be converted into trimethylamine. Trimethylamine N-oxide has an odorless taste. Trimethylamine N-oxide is a potentially toxic compound. Trimethylamine N-oxide has been found to be associated with several diseases known as kidney disease, dimethylglycine dehydrogenase deficiency, rhabdomyolysis, and schizophrenia; trimethylamine n-oxide has also been linked to the inborn metabolic disorders including maple syrup urine disease.	http://www.hmdb.ca/metabolites/HMDB0000925

Trimethylamine N-oxide ; HMDB00925	Trimethylamine N-oxide, also known as (CH3)3no or tmao, belongs to the class of organic compounds known as trialkyl amine oxides. These are hydrocarbyl derivatives of the aminoxide anion, with the general formula R3N+[O-] or R3N=O, where R is an alkyl group. Trimethylamine N-oxide exists as a solid, soluble (in water), and a strong basic compound (based on its pKa). Trimethylamine N-oxide has been found in human epidermis, liver and kidney tissues, and has also been primarily detected in urine, feces, saliva, and blood. Within the cell, trimethylamine N-oxide is primarily located in the cytoplasm. Trimethylamine N-oxide can be converted into trimethylamine. Trimethylamine N-oxide has an odorless taste. Trimethylamine N-oxide is a potentially toxic compound. Trimethylamine N-oxide has been found to be associated with several diseases known as kidney disease, dimethylglycine dehydrogenase deficiency, rhabdomyolysis, and schizophrenia; trimethylamine n-oxide has also been linked to the inborn metabolic disorders including maple syrup urine disease.	http://www.hmdb.ca/metabolites/HMDB0000925
Tryptophan 2-C-mannoside ; HMDB0240296	Tryptophan 2-C-mannoside, also known as 2-alpha-D-mannopyranosyl-L-tryptophan or C-mannosyltryptophan, belongs to the class of organic compounds known as indolyl carboxylic acids and derivatives. Indolyl carboxylic acids and derivatives are compounds containing a carboxylic acid chain (of at least 2 carbon atoms) linked to an indole ring. It is an L-tryptophan derivative and a C-glycosyl compound in which the hydrogen at position 2 on the indole portion has been replaced by an alpha-mannosyl residue. Tryptophan 2-C-mannoside is a very strong basic compound (based on its pKa). Tryptophan 2-C-mannoside has been identified in blood and urine and is a marker of kidney function (PMID: 29234020).	http://www.hmdb.ca/metabolites/HMDB0240296

Undecanedioic acid ; HMDB0000888	Undecanedioic acid, also known as 1,11-undecanedioate, belongs to the class of organic compounds known as medium-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 4 and 12 carbon atoms. Undecanedioic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Undecanedioic acid has been detected in multiple biofluids, such as feces, saliva, and urine. Within the cell, undecanedioic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome.	http://www.hmdb.ca/metabolites/HMDB0000888
Undecanedioic acid ; HMDB00888	Undecanedioic acid, also known as 1,11-undecanedioate, belongs to the class of organic compounds known as medium-chain fatty acids. These are fatty acids with an aliphatic tail that contains between 4 and 12 carbon atoms. Undecanedioic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Undecanedioic acid has been detected in multiple biofluids, such as feces, saliva, and urine. Within the cell, undecanedioic acid is primarily located in the membrane (predicted from logP), cytoplasm and adiposome.	http://www.hmdb.ca/metabolites/HMDB0000888

Uracil ; HMDB0000300	Uracil, also known as U or hybar X, belongs to the class of organic compounds known as pyrimidones. Pyrimidones are compounds that contain a pyrimidine ring, which bears a ketone. Pyrimidine is a 6-membered ring consisting of four carbon atoms and two nitrogen centers at the 1- and 3- ring positions. Uracil exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Uracil has been found throughout all human tissues, and has also been detected in most biofluids, including saliva, blood, feces, and cerebrospinal fluid. Uracil exists in all eukaryotes, ranging from yeast to humans. Uracil participates in a number of enzymatic reactions. In particular, Uracil and ribose 1-phosphate can be biosynthesized from uridine through its interaction with the enzyme uridine phosphorylase 2. Furthermore, Uracil can be converted into dihydrouracil through its interaction with the enzyme dihydropyrimidine dehydrogenase [nadp(+)]. Finally, Uracil can be biosynthesized from dihydrouracil; which is catalyzed by the enzyme dihydropyrimidine dehydrogenase [nadp(+)]. In humans, uracil is involved in the pyrimidine metabolism pathway and the Beta-alanine metabolism pathway. Uracil is also involved in several metabolic disorders, some of which include ureidopropionase deficiency, the carnosinuria, carnosinemia pathway, the mngie (mitochondrial neurogastrointestinal encephalopathy) pathway, and gaba-transaminase deficiency. Uracil has been found to be associated with several diseases known as canavan disease, molybdenium co-factor deficiency, and hypertension; uracil has also been linked to several inborn metabolic disorders including carbamoyl phosphate synthetase deficiency and argininemia.	http://www.hmdb.ca/metabolites/HMDB0000300

Uracil ; HMDB00300	Uracil, also known as U or hybar X, belongs to the class of organic compounds known as pyrimidones. Pyrimidones are compounds that contain a pyrimidine ring, which bears a ketone. Pyrimidine is a 6-membered ring consisting of four carbon atoms and two nitrogen centers at the 1- and 3- ring positions. Uracil exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Uracil has been found throughout all human tissues, and has also been detected in most biofluids, including saliva, blood, feces, and cerebrospinal fluid. Uracil exists in all eukaryotes, ranging from yeast to humans. Uracil participates in a number of enzymatic reactions. In particular, Uracil and ribose 1-phosphate can be biosynthesized from uridine through its interaction with the enzyme uridine phosphorylase 2. Furthermore, Uracil can be converted into dihydrouracil through its interaction with the enzyme dihydropyrimidine dehydrogenase [nadp(+)]. Finally, Uracil can be biosynthesized from dihydrouracil; which is catalyzed by the enzyme dihydropyrimidine dehydrogenase [nadp(+)]. In humans, uracil is involved in the pyrimidine metabolism pathway and the Beta-alanine metabolism pathway. Uracil is also involved in several metabolic disorders, some of which include ureidopropionase deficiency, the carnosinuria, carnosinemia pathway, the mngie (mitochondrial neurogastrointestinal encephalopathy) pathway, and gaba-transaminase deficiency. Uracil has been found to be associated with several diseases known as canavan disease, molybdenium co-factor deficiency, and hypertension; uracil has also been linked to several inborn metabolic disorders including carbamoyl phosphate synthetase deficiency and argininemia.	http://www.hmdb.ca/metabolites/HMDB0000300

Urea ; HMDB0000294	Urea, also known as ur or carbamide, belongs to the class of organic compounds known as ureas. Ureas are compounds containing two amine groups joined by a carbonyl (C=O) functional group. Urea exists as a solid, soluble (in water), and an extremely weak acidic (essentially neutral) compound (based on its pKa). Urea has been found throughout most human tissues, and has also been detected in most biofluids, including sweat, feces, urine, and blood. Within the cell, urea is primarily located in the mitochondria and cytoplasm. Urea exists in all eukaryotes, ranging from yeast to humans. Urea participates in a number of enzymatic reactions. In particular, Urea can be converted into urea; which is catalyzed by the enzyme urea transporter 2. Furthermore, Urea can be converted into urea; which is mediated by the enzyme urea transporter 2. Furthermore, Ornithine and urea can be biosynthesized from L-arginine; which is catalyzed by the enzyme arginase-1. Finally, Ornithine and urea can be biosynthesized from L-arginine through the action of the enzyme arginase-1. In humans, urea is involved in the ethacrynic Acid action pathway, the D-arginine and D-ornithine metabolism pathway, the glucose transporter defect (SGLT2) pathway, and the metolazone action pathway. Urea is also involved in several metabolic disorders, some of which include creatine deficiency, guanidinoacetate methyltransferase deficiency, the bendroflumethiazide action pathway, arginine: glycine amidinotransferase deficiency (agat deficiency), and the hyperprolinemia type I pathway. Urea has been found to be associated with several diseases known as bartter syndrome, type 4b, neonatal, with sensorineural deafness, meningitis, dimethylglycine dehydrogenase deficiency, and tuberculous meningitis; urea has also been linked to the inborn metabolic disorders including primary hypomagnesemia.	http://www.hmdb.ca/metabolites/HMDB0000294

Ureidopropionic acid ; HMDB0000026	Ureidopropionic acid, also known as 3-ureidopropanoate or N-carbamoyl-b-alanine, belongs to the class of organic compounds known as ureas. Ureas are compounds containing two amine groups joined by a carbonyl (C=O) functional group. Ureidopropionic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Ureidopropionic acid has been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, ureidopropionic acid is primarily located in the cytoplasm. Ureidopropionic acid participates in a number of enzymatic reactions. In particular, Ureidopropionic acid can be biosynthesized from dihydrouracil; which is mediated by the enzyme dihydropyrimidinase. Furthermore, Ureidopropionic acid can be converted into Beta-alanine through the action of the enzyme Beta-ureidopropionase. Furthermore, Ureidopropionic acid can be converted into Beta-alanine through the action of the enzyme Beta-ureidopropionase. Finally, Ureidopropionic acid can be biosynthesized from dihydrouracil; which is catalyzed by the enzyme dihydropyrimidinase. In humans, ureidopropionic acid is involved in the Beta-alanine metabolism pathway and the pyrimidine metabolism pathway. Ureidopropionic acid is also involved in several metabolic disorders, some of which include UMP synthase deficiency (orotic aciduria), gaba-transaminase deficiency, the carnosinuria, carnosinemia pathway, and the mngie (mitochondrial neurogastrointestinal encephalopathy) pathway. Outside of the human body, ureidopropionic acid can be found in a number of food items such as red bell pepper, garlic, yautia, and sparkleberry. This makes ureidopropionic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000026

Ureidopropionic acid ; HMDB00026	Ureidopropionic acid, also known as 3-ureidopropanoate or N-carbamoyl-b-alanine, belongs to the class of organic compounds known as ureas. Ureas are compounds containing two amine groups joined by a carbonyl (C=O) functional group. Ureidopropionic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Ureidopropionic acid has been primarily detected in feces, urine, blood, and cerebrospinal fluid. Within the cell, ureidopropionic acid is primarily located in the cytoplasm. Ureidopropionic acid participates in a number of enzymatic reactions. In particular, Ureidopropionic acid can be biosynthesized from dihydrouracil; which is mediated by the enzyme dihydropyrimidinase. Furthermore, Ureidopropionic acid can be converted into Beta-alanine through the action of the enzyme Beta-ureidopropionase. Furthermore, Ureidopropionic acid can be converted into Beta-alanine through the action of the enzyme Beta-ureidopropionase. Finally, Ureidopropionic acid can be biosynthesized from dihydrouracil; which is catalyzed by the enzyme dihydropyrimidinase. In humans, ureidopropionic acid is involved in the Beta-alanine metabolism pathway and the pyrimidine metabolism pathway. Ureidopropionic acid is also involved in several metabolic disorders, some of which include UMP synthase deficiency (orotic aciduria), gaba-transaminase deficiency, the carnosinuria, carnosinemia pathway, and the mngie (mitochondrial neurogastrointestinal encephalopathy) pathway. Outside of the human body, ureidopropionic acid can be found in a number of food items such as red bell pepper, garlic, yautia, and sparkleberry. This makes ureidopropionic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000026

Ureidosuccinic acid ; HMDB0000828	Ureidosuccinic acid, also known as L-ureidosuccinate or carbamyl-L-aspartate, belongs to the class of organic compounds known as aspartic acid and derivatives. Aspartic acid and derivatives are compounds containing an aspartic acid or a derivative thereof resulting from reaction of aspartic acid at the amino group or the carboxy group, or from the replacement of any hydrogen of glycine by a heteroatom. Ureidosuccinic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Ureidosuccinic acid has been found in human prostate tissue, and has also been primarily detected in saliva. Within the cell, ureidosuccinic acid is primarily located in the cytoplasm. Ureidosuccinic acid exists in all eukaryotes, ranging from yeast to humans. Ureidosuccinic acid participates in a number of enzymatic reactions. In particular, Ureidosuccinic acid can be biosynthesized from carbamoyl phosphate and L-aspartic acid through its interaction with the enzyme cad protein. In addition, Ureidosuccinic acid can be biosynthesized from carbamoyl phosphate through the action of the enzyme cad protein. In humans, ureidosuccinic acid is involved in the pyrimidine metabolism pathway and the aspartate metabolism pathway. Ureidosuccinic acid is also involved in several metabolic disorders, some of which include the mngie (mitochondrial neurogastrointestinal encephalopathy) pathway, UMP synthase deficiency (orotic aciduria), the hypoacetylaspartia pathway, and the canavan disease pathway. Outside of the human body, ureidosuccinic acid can be found in a number of food items such as red beetroot, black crowberry, macadamia nut, and rowal. This makes ureidosuccinic acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000828

Uric acid ; HMDB0000289	Uric acid, also known as urate or acid, uric, belongs to the class of organic compounds known as xanthines. These are purine derivatives with a ketone group conjugated at carbons 2 and 6 of the purine moiety. Uric acid exists as a solid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). Uric acid has been found throughout most human tissues, and has also been detected in most biofluids, including urine, saliva, cerebrospinal fluid, and feces. Within the cell, uric acid is primarily located in the peroxisome. Uric acid exists in all eukaryotes, ranging from yeast to humans. Uric acid can be biosynthesized from xanthine; which is mediated by the enzyme xanthine dehydrogenase/oxidase. In humans, uric acid is involved in the azathioprine action pathway, the mercaptopurine action pathway, the thioguanine action pathway, and the purine metabolism pathway. Uric acid is also involved in several metabolic disorders, some of which include the mitochondrial dna depletion syndrome pathway, molybdenum cofactor deficiency, adenylosuccinate lyase deficiency, and purine nucleoside phosphorylase deficiency. Outside of the human body, uric acid can be found in a number of food items such as butternut squash, breadnut tree seed, parsnip, and sesame. This makes uric acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000289

Uric acid ; HMDB00289	Uric acid, also known as urate or acid, uric, belongs to the class of organic compounds known as xanthines. These are purine derivatives with a ketone group conjugated at carbons 2 and 6 of the purine moiety. Uric acid exists as a solid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). Uric acid has been found throughout most human tissues, and has also been detected in most biofluids, including urine, saliva, cerebrospinal fluid, and feces. Within the cell, uric acid is primarily located in the peroxisome. Uric acid exists in all eukaryotes, ranging from yeast to humans. Uric acid can be biosynthesized from xanthine; which is mediated by the enzyme xanthine dehydrogenase/oxidase. In humans, uric acid is involved in the azathioprine action pathway, the mercaptopurine action pathway, the thioguanine action pathway, and the purine metabolism pathway. Uric acid is also involved in several metabolic disorders, some of which include the mitochondrial dna depletion syndrome pathway, molybdenum cofactor deficiency, adenylosuccinate lyase deficiency, and purine nucleoside phosphorylase deficiency. Outside of the human body, uric acid can be found in a number of food items such as butternut squash, breadnut tree seed, parsnip, and sesame. This makes uric acid a potential biomarker for the consumption of these food products.	http://www.hmdb.ca/metabolites/HMDB0000289

Uridine ; HMDB0000296	Uridine, also known as beta-uridine or allo uridine, belongs to the class of organic compounds known as pyrimidine nucleosides. Pyrimidine nucleosides are compounds comprising a pyrimidine base attached to a ribosyl or deoxyribosyl moiety. Uridine exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Uridine has been detected in most biofluids, including feces, cerebrospinal fluid, urine, and blood. Within the cell, uridine is primarily located in the mitochondria, nucleus and lysosome. Uridine exists in all eukaryotes, ranging from yeast to humans. Uridine participates in a number of enzymatic reactions. In particular, Uridine can be biosynthesized from cytidine through the action of the enzyme guanine deaminase. In addition, Uridine can be biosynthesized from uridine 5'-monophosphate; which is mediated by the enzyme cytosolic purine 5'-nucleotidase. In humans, uridine is involved in the pyrimidine metabolism pathway. Uridine is also involved in several metabolic disorders, some of which include dihydropyrimidinase deficiency, the mngie (mitochondrial neurogastrointestinal encephalopathy) pathway, UMP synthase deficiency (orotic aciduria), and Beta ureidopropionase deficiency. Uridine has been found to be associated with several diseases known as degenerative disc disease and canavan disease; uridine has also been linked to the inborn metabolic disorders including lesch-nyhan syndrome.	http://www.hmdb.ca/metabolites/HMDB0000296

Uridine ; HMDB00296	Uridine, also known as beta-uridine or allo uridine, belongs to the class of organic compounds known as pyrimidine nucleosides. Pyrimidine nucleosides are compounds comprising a pyrimidine base attached to a ribosyl or deoxyribosyl moiety. Uridine exists as a solid, soluble (in water), and a very weakly acidic compound (based on its pKa). Uridine has been detected in most biofluids, including feces, cerebrospinal fluid, urine, and blood. Within the cell, uridine is primarily located in the mitochondria, nucleus and lysosome. Uridine exists in all eukaryotes, ranging from yeast to humans. Uridine participates in a number of enzymatic reactions. In particular, Uridine can be biosynthesized from cytidine through the action of the enzyme guanine deaminase. In addition, Uridine can be biosynthesized from uridine 5'-monophosphate; which is mediated by the enzyme cytosolic purine 5'-nucleotidase. In humans, uridine is involved in the pyrimidine metabolism pathway. Uridine is also involved in several metabolic disorders, some of which include dihydropyrimidinase deficiency, the mngie (mitochondrial neurogastrointestinal encephalopathy) pathway, UMP synthase deficiency (orotic aciduria), and Beta ureidopropionase deficiency. Uridine has been found to be associated with several diseases known as degenerative disc disease and canavan disease; uridine has also been linked to the inborn metabolic disorders including lesch-nyhan syndrome.	http://www.hmdb.ca/metabolites/HMDB0000296

Urobilin ; HMDB0004160	Urobilin, also known as urochrome, is the tetrapyrrole chemical compound that is primarily responsible for the yellow color of urine. Urobilin is formed through the oxidation of its parent compound uroblinogen. Urobilin is actually generated through the degradation of heme, the red pigment in haemoglobin and red blood cells (RBCs). RBCs have a life span of about 120 days. When the RBCs have reached the end of their useful lifespan, the cells are engulfed by macrophages and their constituents recycled or disposed of. Heme is broken down when the heme ring is opened by the enzyme known as heme oxygenase, which is found in the endoplasmic reticulum of the macrophages. The oxidation process produces the linear tetrapyrrole known as biliverdin along with ferric iron (Fe3+), and carbon monoxide (CO). In the next reaction, a second methylene group (located between rings III and IV of the porphyrin ring) is reduced by the enzyme known as biliverdin reductase, producing bilirubin. Bilirubin is significantly less extensively conjugated than biliverdin. This reduction causes a change in the color of the biliverdin molecule from blue-green (vert or verd for green) to yellow-red, which is the color of bilirubin (ruby or rubi for red). In plasma virtually all the bilirubin is tightly bound to plasma proteins, largely albumin, because it is only sparingly soluble in aqueous solutions at physiological pH. In the sinusoids unconjugated bilirubin dissociates from albumin, enters the liver cells across the cell membrane through non-ionic diffusion to the smooth endoplasmatic reticulum. In hepatocytes, bilirubin-UDP-glucuronyltransferase (bilirubin-UGT) adds 2 additional glucuronic acid molecules to bilirubin to produce the more water-soluble version of the molecule known as bilirubin diglucuronide. The bilirubin diglucuronide is transferred rapidly across the canalicular membrane into the bile canaliculi where it is then	http://www.hmdb.ca/metabolites/HMDB0004160

	excreted as bile into the large intestine. The bilirubin is further degraded (reduced) by microbes present in the large intestine to form a colorless product known as urobilinogen. Some of the urobilinogen produced by the gut bacteria is reabsorbed and re-enters the enterohepatic circulation. These urobilinogens are oxidized and converted to urobilin. The urobilin is processed through the kidneys and then excreted in the urine, which causes the yellowish color in urine. Many urine tests monitor the amount of urobilin in urine, as this provides some useful insight into urinary tract function. Normally, urine would appear as either light yellow or colorless. A lack of water intake, for example following sleep or dehydration, reduces the water content of urine, thereby concentrating urobilin and producing a darker color of urine. Obstructive jaundice reduces biliary bilirubin excretion, which is then excreted directly from the blood stream into the urine, giving a dark-colored urine. This dark colored urine has a paradoxically low urobilin concentration.	

Urocanic acid ; HMDB0000301	Urocanic acid, also known as urocanate or acid, urocanic, belongs to the class of organic compounds known as imidazolyl carboxylic acids and derivatives. These are organic compounds containing a carboxylic acid chain (of at least 2 carbon atoms) linked to an imidazole ring. Urocanic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Urocanic acid has been found in human liver and skin tissues, and has also been detected in most biofluids, including sweat, saliva, blood, and urine. Within the cell, urocanic acid is primarily located in the cytoplasm. Urocanic acid participates in a number of enzymatic reactions. In particular, Urocanic acid can be biosynthesized from L-histidine; which is mediated by the enzyme histidine ammonia-lyase. In addition, Urocanic acid can be biosynthesized from L-histidine; which is mediated by the enzyme histidine ammonia-lyase. In humans, urocanic acid is involved in the histidine metabolism pathway. Urocanic acid is also involved in a couple of metabolic disorders, which include the histidinemia pathway and the ammonia recycling pathway. Outside of the human body, urocanic acid can be found in mung bean. This makes urocanic acid a potential biomarker for the consumption of this food product.	http://www.hmdb.ca/metabolites/HMDB0000301

Urocanic acid ; HMDB00301	Urocanic acid, also known as urocanate or acid, urocanic, belongs to the class of organic compounds known as imidazolyl carboxylic acids and derivatives. These are organic compounds containing a carboxylic acid chain (of at least 2 carbon atoms) linked to an imidazole ring. Urocanic acid exists as a solid, soluble (in water), and a weakly acidic compound (based on its pKa). Urocanic acid has been found in human liver and skin tissues, and has also been detected in most biofluids, including sweat, saliva, blood, and urine. Within the cell, urocanic acid is primarily located in the cytoplasm. Urocanic acid participates in a number of enzymatic reactions. In particular, Urocanic acid can be biosynthesized from L-histidine; which is mediated by the enzyme histidine ammonia-lyase. In addition, Urocanic acid can be biosynthesized from L-histidine; which is mediated by the enzyme histidine ammonia-lyase. In humans, urocanic acid is involved in the histidine metabolism pathway. Urocanic acid is also involved in a couple of metabolic disorders, which include the histidinemia pathway and the ammonia recycling pathway. Outside of the human body, urocanic acid can be found in mung bean. This makes urocanic acid a potential biomarker for the consumption of this food product.	http://www.hmdb.ca/metabolites/HMDB0000301

Ursodeoxycholic acid ; HMDB0000946	Ursodeoxycholic acid, also known as ursodeoxycholate or actigall, belongs to the class of organic compounds known as dihydroxy bile acids, alcohols and derivatives. Dihydroxy bile acids, alcohols and derivatives are compounds containing or derived from a bile acid or alcohol, and which bears exactly two carboxylic acid groups. Ursodeoxycholic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Ursodeoxycholic acid has been found throughout most human tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, ursodeoxycholic acid is primarily located in the membrane (predicted from logP) and cytoplasm. Ursodeoxycholic acid is also a parent compound for other transformation products, including but not limited to, glycoursodeoxycholic acid, 3alpha,7beta-dihydroxy-12-oxo-5beta-cholanic acid, and tauroursodeoxycholic acid.	http://www.hmdb.ca/metabolites/HMDB0000946
Ursodeoxycholic acid ; HMDB00946	Ursodeoxycholic acid, also known as ursodeoxycholate or actigall, belongs to the class of organic compounds known as dihydroxy bile acids, alcohols and derivatives. Dihydroxy bile acids, alcohols and derivatives are compounds containing or derived from a bile acid or alcohol, and which bears exactly two carboxylic acid groups. Ursodeoxycholic acid exists as a solid and is considered to be practically insoluble (in water) and relatively neutral. Ursodeoxycholic acid has been found throughout most human tissues, and has also been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, ursodeoxycholic acid is primarily located in the membrane (predicted from logP) and cytoplasm. Ursodeoxycholic acid is also a parent compound for other transformation products, including but not limited to, glycoursodeoxycholic acid, 3alpha,7beta-dihydroxy-12-oxo-5beta-cholanic acid, and tauroursodeoxycholic acid.	http://www.hmdb.ca/metabolites/HMDB0000946

Valsartan ; HMDB0014323	Valsartan is an angiotensin-receptor blocker (ARB) that may be used to treat a variety of cardiac conditions including hypertension, diabetic nephropathy and heart failure. Valsartan lowers blood pressure by antagonizing the renin-angiotensin-aldosterone system (RAAS); it competes with angiotensin II for binding to the type-1 angiotensin II receptor (AT1) subtype and prevents the blood pressure increasing effects of angiotensin II. Unlike angiotensin-converting enzyme (ACE) inhibitors, ARBs do not have the adverse effect of dry cough. Valsartan may be used to treat hypertension, isolated systolic hypertension, left ventricular hypertrophy and diabetic nephropathy. It may also be used as an alternative agent for the treatment of heart failure, systolic dysfunction, myocardial infarction and coronary artery disease.	http://www.hmdb.ca/metabolites/HMDB0014323
Valyl-Glycine ; HMDB0029127	Valyl-glycine, also known as V-g dipeptide or val-gly, belongs to the class of organic compounds known as dipeptides. These are organic compounds containing a sequence of exactly two alpha-amino acids joined by a peptide bond. Valyl-glycine is soluble (in water) and a weakly acidic compound (based on its pKa).	http://www.hmdb.ca/metabolites/HMDB0029127
Vanillactic acid ; HMDB0000913	Vanillactic acid, also known as vanillactate or VLA, belongs to the class of organic compounds known as phenylpropanoic acids. Phenylpropanoic acids are compounds with a structure containing a benzene ring conjugated to a propanoic acid. Vanillactic acid is slightly soluble (in water) and a weakly acidic compound (based on its pKa). Vanillactic acid has been detected in multiple biofluids, such as urine and blood. Vanillactic acid has been linked to the inborn metabolic disorders including aromatic l-amino acid decarboxylase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000913

Vitamin A ; HMDB0000305	13-cis-Retinol, also known as neovitamin a, belongs to the class of organic compounds known as retinoids. These are oxygenated derivatives of 3,7-dimethyl-1-(2,6,6-trimethylcyclohex-1-enyl)nona-1,3,5,7-tetraene and derivatives thereof. Thus, 13-cis-retinol is considered to be an isoprenoid lipid molecule. 13-cis-Retinol is considered to be a practically insoluble (in water) and relatively neutral molecule. Within the cell, 13-cis-retinol is primarily located in the cytoplasm and membrane (predicted from logP). 13-cis-Retinol can be converted into 13-cis-retinyl hexadecanoate and 13-cis-retinyl tetradecanoate.	http://www.hmdb.ca/metabolites/HMDB0000305
Vitamin A ; HMDB00305	13-cis-Retinol, also known as neovitamin a, belongs to the class of organic compounds known as retinoids. These are oxygenated derivatives of 3,7-dimethyl-1-(2,6,6-trimethylcyclohex-1-enyl)nona-1,3,5,7-tetraene and derivatives thereof. Thus, 13-cis-retinol is considered to be an isoprenoid lipid molecule. 13-cis-Retinol is considered to be a practically insoluble (in water) and relatively neutral molecule. Within the cell, 13-cis-retinol is primarily located in the cytoplasm and membrane (predicted from logP). 13-cis-Retinol can be converted into 13-cis-retinyl hexadecanoate and 13-cis-retinyl tetradecanoate.	http://www.hmdb.ca/metabolites/HMDB0000305

Xanthine ; HMDB0000292	Xanthine, also known as Xan or 2,6-dioxopurine, belongs to the class of organic compounds known as xanthines. These are purine derivatives with a ketone group conjugated at carbons 2 and 6 of the purine moiety. Xanthine exists as a solid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). Xanthine has been found throughout most human tissues, and has also been detected in most biofluids, including saliva, sweat, blood, and cerebrospinal fluid. Within the cell, xanthine is primarily located in the cytoplasm and peroxisome. Xanthine exists in all eukaryotes, ranging from yeast to humans. Xanthine participates in a number of enzymatic reactions. In particular, Xanthine can be biosynthesized from guanine; which is catalyzed by the enzyme guanine deaminase. In addition, Xanthine and ribose 1-phosphate can be biosynthesized from xanthosine through the action of the enzyme purine nucleoside phosphorylase. In humans, xanthine is involved in the thioguanine action pathway, the mercaptopurine action pathway, the azathioprine action pathway, and the purine metabolism pathway. Xanthine is also involved in several metabolic disorders, some of which include the mitochondrial dna depletion syndrome pathway, the xanthinuria type I pathway, the lesch-nyhan syndrome (LNS) pathway, and adenylosuccinate lyase deficiency. Xanthine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000292

Xanthine ; HMDB00292	Xanthine, also known as Xan or 2,6-dioxopurine, belongs to the class of organic compounds known as xanthines. These are purine derivatives with a ketone group conjugated at carbons 2 and 6 of the purine moiety. Xanthine exists as a solid, slightly soluble (in water), and a very weakly acidic compound (based on its pKa). Xanthine has been found throughout most human tissues, and has also been detected in most biofluids, including saliva, sweat, blood, and cerebrospinal fluid. Within the cell, xanthine is primarily located in the cytoplasm and peroxisome. Xanthine exists in all eukaryotes, ranging from yeast to humans. Xanthine participates in a number of enzymatic reactions. In particular, Xanthine can be biosynthesized from guanine; which is catalyzed by the enzyme guanine deaminase. In addition, Xanthine and ribose 1-phosphate can be biosynthesized from xanthosine through the action of the enzyme purine nucleoside phosphorylase. In humans, xanthine is involved in the thioguanine action pathway, the mercaptopurine action pathway, the azathioprine action pathway, and the purine metabolism pathway. Xanthine is also involved in several metabolic disorders, some of which include the mitochondrial dna depletion syndrome pathway, the xanthinuria type I pathway, the lesch-nyhan syndrome (LNS) pathway, and adenylosuccinate lyase deficiency. Xanthine is a potentially toxic compound.	http://www.hmdb.ca/metabolites/HMDB0000292

Xanthosine ; HMDB0000299	Xanthosine, also known as xanthine riboside, belongs to the class of organic compounds known as purine nucleosides. Purine nucleosides are compounds comprising a purine base attached to a ribosyl or deoxyribosyl moiety. Xanthosine is soluble (in water) and a very weakly acidic compound (based on its pKa). Xanthosine has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, xanthosine is primarily located in the cytoplasm. Xanthosine exists in all eukaryotes, ranging from yeast to humans. Xanthosine participates in a number of enzymatic reactions. In particular, Xanthosine can be biosynthesized from xanthylic acid; which is catalyzed by the enzyme cytosolic purine 5'-nucleotidase. In addition, Xanthosine can be converted into xanthine and ribose 1-phosphate through the action of the enzyme purine nucleoside phosphorylase. In humans, xanthosine is involved in the mercaptopurine action pathway, the thioguanine action pathway, the azathioprine action pathway, and the purine metabolism pathway. Xanthosine is also involved in several metabolic disorders, some of which include the xanthinuria type II pathway, the lesch-nyhan syndrome (LNS) pathway, myoadenylate deaminase deficiency, and the mitochondrial dna depletion syndrome pathway.	http://www.hmdb.ca/metabolites/HMDB0000299

Xanthosine ; HMDB00299	Xanthosine, also known as xanthine riboside, belongs to the class of organic compounds known as purine nucleosides. Purine nucleosides are compounds comprising a purine base attached to a ribosyl or deoxyribosyl moiety. Xanthosine is soluble (in water) and a very weakly acidic compound (based on its pKa). Xanthosine has been detected in multiple biofluids, such as feces, urine, and blood. Within the cell, xanthosine is primarily located in the cytoplasm. Xanthosine exists in all eukaryotes, ranging from yeast to humans. Xanthosine participates in a number of enzymatic reactions. In particular, Xanthosine can be biosynthesized from xanthylic acid; which is catalyzed by the enzyme cytosolic purine 5'-nucleotidase. In addition, Xanthosine can be converted into xanthine and ribose 1-phosphate through the action of the enzyme purine nucleoside phosphorylase. In humans, xanthosine is involved in the mercaptopurine action pathway, the thioguanine action pathway, the azathioprine action pathway, and the purine metabolism pathway. Xanthosine is also involved in several metabolic disorders, some of which include the xanthinuria type II pathway, the lesch-nyhan syndrome (LNS) pathway, myoadenylate deaminase deficiency, and the mitochondrial dna depletion syndrome pathway.	http://www.hmdb.ca/metabolites/HMDB0000299

Xanthurenic acid ; HMDB0000881	Xanthurenic acid, also known as xanthurenate or 8-hydroxykynurenate, belongs to the class of organic compounds known as quinoline carboxylic acids. These are quinolines in which the quinoline ring system is substituted by a carboxyl group at one or more positions. Xanthurenic acid exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). Xanthurenic acid has been found in human epidermis tissue, and has also been detected in multiple biofluids, such as feces, urine, and blood. Xanthurenic acid exists in all eukaryotes, ranging from yeast to humans. In humans, xanthurenic acid is involved in the tryptophan metabolism pathway. Xanthurenic acid has been found to be associated with the diseases known as hemodialysis; xanthurenic acid has also been linked to the inborn metabolic disorders including kynureninase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000881
Xanthurenic acid ; HMDB00881	Xanthurenic acid, also known as xanthurenate or 8-hydroxykynurenate, belongs to the class of organic compounds known as quinoline carboxylic acids. These are quinolines in which the quinoline ring system is substituted by a carboxyl group at one or more positions. Xanthurenic acid exists as a solid, slightly soluble (in water), and a moderately acidic compound (based on its pKa). Xanthurenic acid has been found in human epidermis tissue, and has also been detected in multiple biofluids, such as feces, urine, and blood. Xanthurenic acid exists in all eukaryotes, ranging from yeast to humans. In humans, xanthurenic acid is involved in the tryptophan metabolism pathway. Xanthurenic acid has been found to be associated with the diseases known as hemodialysis; xanthurenic acid has also been linked to the inborn metabolic disorders including kynureninase deficiency.	http://www.hmdb.ca/metabolites/HMDB0000881

27. **lk_human_sex**

Name	Description
Female	Gender is Female.
Male	Gender is Male.
Other	Gender is Other. Value may be used to differeniate as neither Male or Female.
Prefer Not to Answer	A response indicating that an individual prefers or preferred not to answer.
Unknown	Gender is Unknown. Value may be used to signify that gender is unknown at the time.

28. **lk_lab_test_name**

Name	Description	Link	ID
name_preferred			
25-Hydroxyvitamin D Measurement	A measurement of the total inactive Vitamin D in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C92268	VITDIT
A/G RATIO	Blood Albumin Level to Blood Globulin Level Ratio	http://purl.obolibrary.org/obo/CMO_0002402	
Acanthocytes	A measurement of the acanthocytes per unit of a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74699	ACANT
Acanthocytes/Erythrocytes	A relative measurement (ratio or percentage) of acanthocytes to all erythrocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74633	ACANTRBC
Activated Partial Thromboplastin Time	A measurement of the length of time that it takes for clotting to occur when reagents are added to a plasma specimen. The test is partial due to the absence of tissue factor (Factor III) from the reaction mixture.	http://purl.obolibrary.org/obo/CMO_0000210	APTT
Alanine Aminotransferase	A measurement of the alanine aminotransferase in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000574	ALT
Albumin	A measurement of the albumin protein in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000549	ALB

Albumin/Creatinine	A relative measurement (ratio or percentage) of the albumin to the creatinine in a urine sample.	http://purl.obolibrary.org/obo/NCIT_C74761	ALBCREAT
Alkaline Phosphatase	A measurement of the alkaline phosphatase in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000576	ALP
Amylase	Urine Amylase Level	http://purl.obolibrary.org/obo/CMO_0000280	
Anion Gap	Anion Gap	http://purl.obolibrary.org/obo/CMO_0000067	
Anisocytes	A measurement of the inequality in the size of the red blood cells in a whole blood specimen.	http://purl.obolibrary.org/obo/NCIT_C74797	ANISO
Anti-DNA Antibodies	A measurement of the anti-DNA antibodies in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C81973	DNAAB
Anti-Double Stranded DNA	A measurement of the anti-double stranded DNA antibody in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74913	ADSDNA
Anti-Ribonucleoprotein Antibody	An antinuclear antibody directed against U1 snRNP, that is strongly associated with mixed connective tissue disease and commonly detected in lupus.	http://purl.obolibrary.org/obo/NCIT_C121325	
Anti-Saccharomyces cerevisiae Antibody	A measurement of the anti-Saccharomyces cerevisiae antibody in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C81976	ASCAB

Anti-Smith Antibody	An antinuclear antibody directed against small nuclear ribonucleoproteins (snRNPs), that is highly specific, but has poor sensitivity for systemic lupus erythematosus (SLE). Presence of anti-Sm antibodies are associated with central nervous system, kidney, lung and cardiac involvement in SLE, but are not indicative of disease activity.	http://purl.obolibrary.org/obo/NCIT_C121324	
Anti-SS-A antibody	Anti-SS-A antibody	http://purl.bioontology.org/ontology/MEDDRA/10060213	
Anti-SS-B antibody	Anti-SS-B antibody	http://purl.bioontology.org/ontology/MEDDRA/10060214	
Anticardiolipin IgG Antibody	An IgG autoantibody directed against cardiolipin. It is associated with thrombosis, spontaneous abortion, and complications during labor.	http://purl.obolibrary.org/obo/NCIT_C70990	
Anticardiolipin IgM Antibody	An IgM autoantibody directed against cardiolipin. It is associated with hemolytic anemia.	http://purl.obolibrary.org/obo/NCIT_C70619	
Antiglobulin Test, Direct	A measurement of the antibody or complement-coated erythrocytes in a blood specimen in vivo.	http://purl.obolibrary.org/obo/NCIT_C81974	ANGLOBDR
Antimitochondrial Antibodies	A measurement of the antimitochondrial antibodies in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C81975	AMA
Antinuclear Antibodies	A measurement of the antinuclear antibodies (antibodies that attack the body's own tissue) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74916	ANA

Apolipoprotein A1	Blood Apolipoprotein A1 Level	http://purl.obolibrary.org/obo/CMO_0000520	
Apolipoprotein B	Blood Apoliprotein B Level	http://purl.obolibrary.org/obo/CMO_0000522	
Aspartate Aminotransferase	A measurement of the aspartate aminotransferase in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000580	AST
Aspartate Aminotransferase Antigen	A measurement of the aspartate aminotransferase antigen in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C81978	ASTAG
Auer Rods	A measurement of the Auer rods (elongated needle structures that are found in the cytoplasm of leukemic blasts and are formed by clumps of azurophilic granular material) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74657	AUERRODS
Bacteria Count	The quantitative determination of bacterial populations. The two most widely used methods for determining bacterial numbers are: 1) the standard, or viable, plate count method and 2) spectrophotometric (turbidimetric) analysis.	http://purl.obolibrary.org/obo/CMO_0002656	BACT
Band	Blood Band Neutrophil Count	http://purl.obolibrary.org/obo/CMO_0002336	
Basophil % of WBC	Blood Basophil Count to Total Leukocyte Count Ratio	http://purl.obolibrary.org/obo/CMO_0000368	
Basophils	A measurement of the basophils per unit of a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000034	BASO

Basophils/Leukocytes	A relative measurement (ratio or percentage) of the basophils to leukocytes in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000368	BASOLE
BC_GLUC (GLUC)	Blood Glucose Level	http://purl.obolibrary.org/obo/CMO_0000046	
Beta-2 Glycoprotein Antibody	A measurement of the beta-2 glycoprotein antibody in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C81979	B2GLYAB
Bicarbonate	A measurement of the bicarbonate in a biological specimen	http://purl.obolibrary.org/obo/CMO_0000498	BICARB
Bilirubin	A measurement of the total bilirubin in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000123	BILI
Bite Cells	A measurement of the bite cells (erthrocytes with the appearance of a bite having been removed, due to oxidative hemolysis) in a biological specimen .	http://purl.obolibrary.org/obo/NCIT_C74700	BITECE
Bite Cells/Erythrocytes	A relative measurement of the bite cells (erthrocytes with the appearance of a bite having been removed, due to oxidative hemolysis) to all erythrocytes in a biological specimen .	http://purl.obolibrary.org/obo/NCIT_C74634	BTECERBC
Blasts	A measurement of the blast cells per unit of a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74605	BLAST
Blasts/Leukocytes	A relative measurement (ratio or percentage) of the blasts to leukocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C64487	BLASTLE

blood alanine aminotransferase activity level	The amount of enzymatic activity of glutamic-pyruvate transaminase enzyme, commonly known as alanine transaminase or alanine aminotransferase (ALT), enzyme in a specified sample of blood. ALT catalyzes the reversible transamination between alanine and 2-oxoglutarate to generate pyruvate and glutamate. Blood ALT level is used as an enzymatic marker for liver disease or damage.	http://purl.obolibrary.org/obo/CMO_0000574	
blood alkaline phosphatase activity level	Quantitation of the catalytic effect exerted by alkaline phosphatase (AP) in a specified sample of blood. AP is an enzyme that catalyzes the cleavage of orthophosphate from orthophosphoric monoesters under alkaline conditions.	http://purl.obolibrary.org/obo/CMO_0000576	
blood aspartate aminotransferase activity level	The amount of enzymatic activity of glutamic-oxaloacetic transaminase enzyme, commonly known as aspartate transaminase or aspartate aminotransferase (AST), in a specified sample of blood. AST catalyzes the reversible transfer of an amine group from l-glutamic acid to oxaloacetic acid, forming alpha-ketoglutaric acid and l-aspartic acid. Blood AST level is used as an enzymatic marker for liver disease or damage.	http://purl.obolibrary.org/obo/CMO_0000580	
blood calcium level	The amount of calcium ions in a specified volume of blood.	http://purl.obolibrary.org/obo/CMO_0000502	
blood carbon dioxide level	The concentration of carbon dioxide (the product of the combustion of carbon with an excess of oxygen) in the blood.	http://purl.obolibrary.org/obo/CMO_0001322	
blood chloride level	The amount of chloride ions in a specified volume of blood.	http://purl.obolibrary.org/obo/CMO_0000497	

blood creatine kinase activity level	The amount of enzymatic activity of creatine kinase (CK) enzyme in a specified sample of blood. CK catalyses the reversible transfer of phosphate between ATP and various phosphogens such as creatine phosphate. Blood CK level is used as an enzymatic marker for myocardial infarction, rhabdomyolysis and acute renal failure.	http://purl.obolibrary.org/obo/CMO_0002242	
blood creatinine measurement	blood creatinine measurement	http://purl.obolibrary.org/obo/CMO_0000767	
blood eosinophil count	The number of granulocytes categorized as eosinophils in a specified sample of blood. An eosinophil is a granular leukocyte having a nucleus with two lobes connected by a thread of chromatin, and cytoplasm containing coarse, round granules of uniform size that stain readily with eosin and other acid dyes.	http://purl.obolibrary.org/obo/CMO_0000033	
blood fibrinogen level	Measurement of the amount of fibrinogen in blood, the fluid that circulates through the heart, arteries, capillaries and veins carrying nutrients and oxygen to the body tissues and metabolites away from them. Fibrinogen is a glycoprotein comprised of three pairs of nonidentical polypeptide chains; cleavage products of fibrinogen have a major role in blood clotting as well as roles in cell adhesion and spreading, display vasoconstrictor activity, and can function as chemotactic and mitogenic agents for several cell types.	http://purl.obolibrary.org/obo/CMO_0000209	

blood high density lipoprotein cholesterol level	Measurement of the amount of cholesterol, a eukaryotic sterol that in higher animals is the precursor of bile acids and steroid hormones and a key constituent of cell membranes, carried in high-density lipoprotein (HDL) molecules in a specified volume of blood, the fluid that circulates through the heart, arteries, capillaries and veins carrying nutrients and oxygen to the body tissues and metabolites away from them. HDL is the smallest of the major lipoprotein particles, complex molecules that consist of a protein membrane surrounding a core of lipids. The HDL class of lipoproteins, specifically the subtypes of HDL2 and HDL3, have densities between 1.063 and 1.210 g/ml.	http://purl.obolibrary.org/obo/CMO_0000052	
blood lactate dehydrogenase activity level	The amount of ezymatic activity of lactate dehydrogenase (LDH) in a specified volume of blood. LDH is the enzyme which catalyses the reaction S)-lactate + NAD(+) <=> pyruvate + NADH. Blood LDH level can be used as a marker for tissue damage.	http://purl.obolibrary.org/obo/CMO_0000666	

blood low density lipoprotein cholesterol level	Measurement of the amount of cholesterol, a eukaryotic sterol that in higher animals is the precursor of bile acids and steroid hormones and a key constituent of cell membranes, carried in low-density lipoprotein (LDL) molecules in a specified volume of blood, the fluid that circulates through the heart, arteries, capillaries and veins carrying nutrients and oxygen to the body tissues and metabolites away from them. LDL constitute a class of relatively large, heterogeneous lipoprotein particles, complex molecules that consist of a protein membrane surrounding a core of lipids. The LDL class of lipoproteins has a density between 1.019 and 1.063 g/ml. In some animal species, such as canine and rodents, this may overlap with the HDL1 class and be designated LDL/HDL1.	http://purl.obolibrary.org/obo/CMO_0000053	
blood magnesium level	blood magnesium level	http://purl.obolibrary.org/obo/CMO_0000505	
blood phosphate level	The amount of phosphorus, measured as inorganic phosphate, in a specified sample of blood.	http://purl.obolibrary.org/obo/CMO_0000504	
blood potassium level	The amount of potassium ions in a specified volume of blood.	http://purl.obolibrary.org/obo/CMO_0000496	
blood sodium level	The amount of sodium ions in a specified volume of blood.	http://purl.obolibrary.org/obo/CMO_0000499	

blood triglyceride level	The amount of triglycerides in a specific volume of blood, the fluid that circulates through the heart, arteries, capillaries and veins carrying nutrients and oxygen to the body tissues and metabolites away from them. Triglycerides are any of a group of lipids that are esters formed from one molecule of glycerol and three molecules of one or more fatty acids, are widespread in adipose tissue, and commonly circulate in the blood in the form of lipoproteins.	http://purl.obolibrary.org/obo/CMO_0000118	
Blood Urea Nitrogen	A measurement of the urea nitrogen in a blood specimen.	http://purl.obolibrary.org/obo/CMO_0000049	BUN
blood urea nitrogen level	The level of urea in the blood in terms of nitrogen content; converted to urea concentration by multiplying by 60/28 or 2.14. Urea is the chief nitrogenous end product of protein metabolism in whole blood. Urea is formed in the liver from amino acids and from ammonia compounds and can be found in urine, blood, and lymph.	http://purl.obolibrary.org/obo/CMO_0000049	
Brain-Derived Neurotrophic Factor Measurement	A measurement of the brain-derived neurotrophic factor in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C82004	BDNF
BUN	Blood Urea Nitrogen Level	http://purl.obolibrary.org/obo/CMO_0000049	
Burr Cells	A measurement of the Burr cells (erythrocytes characterized by the presence of small, blunt projections evenly distributed across the cell surface) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74701	BURRCE
C Reactive Protein	A measurement of the C reactive protein in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C64548	CRP

C-peptide	The determination of the amount of C-peptide present in a sample.	http://purl.obolibrary.org/obo/NCIT_C74736	CPEPTIDE
Cabot Rings	A measurement of the Cabot rings (red-purple staining, threadlike, ring or figure 8 shaped filaments in in an erythrocyte) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74702	CABOT
Calcium	A measurement of the calcium in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000502	CA
calculated urine creatinine level	Any measurement which has been normalized, adjusted or derived by a mathematical process or computation, of the amount of creatinine in a specified sample of urine.	http://purl.obolibrary.org/obo/CMO_0002757	
Cancer Antigen 125	A measurement of the cancer antigen 125 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C79089	CA125AG
Cancer Antigen 19-9	A measurement of the cancer antigen 18-9 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C81982	CA19_9AG
Carbon Dioxide	A quantitative measurement of the gas carbon dioxide present in a sample.	http://purl.obolibrary.org/obo/CMO_0001322	CO2
Carcinoembryonic Antigen	A measurement of the carcinoembryonic antigen in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C81983	CEA
CD19	A count of the CD19 B cells per unit of a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C103808	CD19
CD19/Lymphocytes	A relative measurement (ratio or percentage) of CD19 B cells to all lymphocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C103812	CD19LY

CD20 Expressing Cell Measurement	A count of the CD20 expressing cells per unit of a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C103368	
CD3	A count of the CD3 T cells per unit of a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C103809	CD3
CD3 Positive	An indication that the CD3 complex has been detected in a sample.	http://purl.obolibrary.org/obo/NCIT_C131386	
CD3/Lymphocytes	A relative measurement (ratio or percentage) of CD3 T cells to all lymphocytes in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0003221	CD3LY
CD4	A count of the CD4 T cells per unit of a biological specimen.	http://purl.obolibrary.org/obo/CMO_0001087	CD4
CD4 Positive	An indication that CD4 expression has been detected in a sample.	http://purl.obolibrary.org/obo/NCIT_C153220	
CD4/CD8	A relative measure (ratio or percentage) of CD4 T cells to the CD8 T cells in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000598	CD4CD8
CD4/Lymphocytes	A relative measurement (ratio or percentage) of CD4 T cells to all lymphocytes in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0002354	CD4LY
CD40	A measurement of the CD40 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C82006	CD40
CD40 Ligand	A measurement of the CD40 ligand in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C82007	CD40L
CD8	A count of the CD8 T cells per unit of a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000597	CD8

CD8 Positive	Indicates that expression of the CD8 complex has been detected in a sample.	http://purl.obolibrary.org/obo/NCIT_C139789	
CD8/Lymphocytes	A relative measurement (ratio or percentage) of CD8 T cells to all lymphocytes in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0002355	CD8LY
Chloride	A measurement of the chloride in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000497	CL
Cholesterol	A measurement of the cholesterol in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0002280	CHOL
Cholesterol/HDL-Cholesterol	A relative measurement (ratio or percentage) of total cholesterol to high-density lipoprotein cholesterol (HDL-C) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C80171	
Complement Bb	A measurement of the complement Bb in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C80172	CBB
Complement C1q Antibody	A measurement of the complement C1q antibody in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C80173	C1QAB
Complement C3	A measurement of the complement C3 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C80174	C3
Complement C3a	A measurement of the complement C3a in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C80175	C3A
Complement C3b	A measurement of the complement C3b in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C80176	C3B

Complement C4	A measurement of the complement C4 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C80177	C4
Complement C4a	A measurement of the complement C4a in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C80178	C4A
Complement C5a	A measurement of the complement C5a in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C80179	C5A
Complement Total	A measurement of the total complement in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C80160	CTOT
Creatine Kinase	A measurement of the total creatine kinase in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0002242	CK
Creatinine	A measurement of the creatinine in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000538	CREAT
Creatinine clearance	The determination of the clearance of endogenous creatinine, used for evaluating the glomerular filtration rate.	http://purl.obolibrary.org/obo/CMO_0000765	Creatinine Clearance
Crenated Cells	A measurement of the Burr cells (erythrocytes characterized by the presence of multiple small, sharp projections evenly distributed across the cell surface) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74703	CRENCE
Cytomegalovirus Viral Load Measurement	The determination of the amount of cytomegalovirus viral load present in a sample.	http://purl.obolibrary.org/obo/CMO_0003142	CMVVLD
Dacryocytes	A measurement of dacryocytes in unit of a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C64801	TEARDCY

Differential Segment (percent)	Blood Segmented Neutrophil Count to Total Leukocyte Count Ratio	http://purl.obolibrary.org/obo/CMO_0002337	
Dohle Bodies	A measurement of the Dohle bodie (blue-gray, basophilic, leukocyte inclusions located in the peripheral cytoplasm of neutrophils) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74610	DOHLE
Elliptocytes	A measurement of the elliptically shaped erythrocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C64549	ELLIPCY
Eosinophil	Blood Eosinophil Count	http://purl.obolibrary.org/obo/CMO_0000033	
Eosinophil % of WBC	Blood Eosinophil Count to Total Leukocyte Count Ratio	http://purl.obolibrary.org/obo/CMO_0000369	
Eosinophil Metamyelocytes	A measurement of the eosinphil metamyelocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C84819	EOSMM
Eosinophil Myelocytes	A measurement of the eosinophil myelocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C84821	EOSMYL
Eosinophils	A measurement of the eosinophils per unit in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C64550	EOS
Eosinophils/Leukocytes	A relative measurement (ratio or percentage) of the eosinophils to leukocytes in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000369	EOSLE
Epithelial cells	The determination of the number of epithelial cells in a sample.	http://purl.obolibrary.org/obo/NCIT_C64605	Epithelial Cells

Erythrocyte Sedimentation Rate	The distance (e.g. millimeters) that red blood cells settle in unclotted blood over a specified unit of time (e.g. one hour)	http://purl.obolibrary.org/obo/NCIT_C74611	ESR
Erythrocytes	A measurement of the total erythrocytes per unit of a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000025	RBC
Erythrocytes Distribution Width	A value derived from mean corpuscular volume and the standard deviation of the red blood cell volume in a whole blood specimen.	http://purl.obolibrary.org/obo/NCIT_C64800	RDW
Estimated GFR by Cockcroft-Gault	Blood Glomerular Filtration Rate	http://purl.obolibrary.org/obo/CMO_0000490	
Estimated GFR by MDRD	Blood Glomerular Filtration Rate, Diet in Renal Disease Formula (MDRD)	http://purl.obolibrary.org/obo/CMO_0000491	
Gamma Glutamyl Transpeptidase	A quantitative measurement of the amount of gamma glutamyl transpeptidase present in a sample.	http://purl.obolibrary.org/obo/CMO_0002239	GGT
Giant Platelets	A measurement of the giant (larger than 7um in diameter) platelets in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74728	PLATGNT
Globulin	Blood Globulin Level	http://purl.obolibrary.org/obo/CMO_0002398	
Glomerular Filtration Rate	A kidney function test that measures the fluid volume that is filtered from the kidney glomeruli to the Bowman's capsule per unit of time.	http://purl.obolibrary.org/obo/CMO_0000490	GFR
GLUC (GLUC)	Blood Glucose Level	http://purl.obolibrary.org/obo/CMO_0000046	

Glucose	A measurement of the glucose in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000046	GLUC
Glutamic Acid Decarboxylase 2 Antibody	A measurement of the glutamic acid decarboxylase 2 antibody in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C82017	GAD2AB
Glutamic Acid Decarboxylase Antibody	The determination of the amount of glutamic acid decarboxylase antibody present in a sample.	http://purl.obolibrary.org/obo/NCIT_C96653	GADAB
Glycosylated Hemoglobin	A quantitative measurement of the amount of glycosylated hemoglobin present in a sample of blood.	http://purl.obolibrary.org/obo/NCIT_C64849	HBA1C
Hairy Cells	A measurement of the hairy cells (b-cell lymphocytes with hairy projections from the cytoplasm) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74604	HAIRYCE
Hairy Cells/Lymphocytes	A measurement (ratio or percentage) of the hairy cells (b-cell lymphocytes with hairy projections from the cytoplasm) to all lymphocytes in a biological specimen .	http://purl.obolibrary.org/obo/NCIT_C74640	HRYCELY
HDL Cholesterol	A measurement of the high density lipoprotein cholesterol in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C105587	HDL
Heinz Bodies	A measurement of the Heinz bodies (small round inclusions within the body of a red blood cell) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74709	HEINZ
Helmet Cells	A measurement of the Helmet cells (specialized Keratocytes with two projections on either end that are tapered and hornlike) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74658	HELMETCE
Hematocrit	The percentage of a whole blood specimen that is composed of red blood cells (erythrocytes).	http://purl.obolibrary.org/obo/CMO_0000037	HCT

Hemoglobin	A measurement of the hemoglobin in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000508	HGB
Hepatitis A Virus Surface Antibody	A measurement of the surface antibody reaction of a biological specimen to the Hepatitis A virus.	http://purl.obolibrary.org/obo/NCIT_C74710	HASAB
Hepatitis B Virus Core Antibody	An indication that antibodies that recognize a hepatitis B virus core protein have been detected in a sample.	http://purl.obolibrary.org/obo/NCIT_C148282	
Hepatitis B Virus Surface Antibody	A measurement of the surface antibody reaction of a biological specimen to the Hepatitis B virus.	http://purl.obolibrary.org/obo/NCIT_C74711	HBSAB
Hepatitis B Virus Surface Antigen	A measurement of the surface antigen reaction of a biological specimen to the Hepatitis B virus.	http://purl.obolibrary.org/obo/NCIT_C64850	HBSAG
Hepatitis C Virus Antibody	An indication that antibodies that recognize the hepatitis C virus have been detected in a sample.	http://purl.obolibrary.org/obo/NCIT_C160411	
Hepatitis C Virus Surface Antibody	A measurement of the surface antibody reaction of a biological specimen to the Hepatitis C virus.	http://purl.obolibrary.org/obo/NCIT_C74712	HCSAB
Heterophile Antibodies	A measurement of the heterophile antibodies in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C81984	HTPHAB
HIV-1 Antibody	A measurement of the antibody reaction of a biological specimen to the HIV-1 virus.	http://purl.obolibrary.org/obo/NCIT_C74713	HIV1AB
HIV-1/2 Antibody	A measurement of the antibody reaction of a biological specimen to the either the HIV-1 or HIV-2 virus.	http://purl.obolibrary.org/obo/NCIT_C74714	HIV12AB
HIV-2 Antibody	A measurement of the antibody reaction of a biological specimen to the HIV-2 virus.	http://purl.obolibrary.org/obo/NCIT_C74715	HIV2AB

Howell-Jolly Bodies	A measurement of the Howell-Jolly bodies (spherical, blue-black condensed DNA inclusions within the body of a red blood cell that appear under Wright-stain) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74704	HOWJOL
Hypersegmented Cells	A measurement of the hypersegmented (more than five lobes) neutrophils in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74612	HYPSEGCE
Hypochromia	An observation which indicates that the hemoglobin concentration in a red blood cell specimen has fallen below a specified level.	http://purl.obolibrary.org/obo/NCIT_C64802	HPOCROM
IgG1	Serum Immunoglobulin G1 Level	http://purl.obolibrary.org/obo/CMO_0002115	
IgG2	Serum Immunoglobulin G2a Level	http://purl.obolibrary.org/obo/CMO_0002116	
Immunoglobulin A	A measurement of the Immunoglobulin A in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0002094	IGA
Immunoglobulin D	Blood Immunoglobulin D Level	http://purl.obolibrary.org/obo/CMO_0002093	
Immunoglobulin E	A measurement of the Immunoglobulin E in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0002099	IGE
Immunoglobulin G	A measurement of the Immunoglobulin G in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0002091	IGG
Immunoglobulin M	A measurement of the Immunoglobulin M in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0002092	IGM

Indirect Antiglobulin Test	A test that uses Coombs' reagent to detect the presence of anti-erythrocyte antibodies in serum.	http://purl.obolibrary.org/obo/NCIT_C91372	ANGLBIND
Insulin Autoantibody	The determination of the amount of insulin autoantibody in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C119286	INSAAB
Interferon Alpha	A measurement of the interferon alpha in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C81994	IFNA
Interferon Beta	A measurement of the interferon beta in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C81995	IFNB
Interferon Gamma	A measurement of the interferon gamma in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C81996	IFNG
Interleukin 1	A measurement of the interleukin 1 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74805	INTLK1
Interleukin 10	A measurement of the interleukin 10 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74806	INTLK10
Interleukin 11	A measurement of the interleukin 11 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74807	INTLK11
Interleukin 12	A measurement of the interleukin 12 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74808	INTLK12
Interleukin 13	A measurement of the interleukin 13 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74809	INTLK13
Interleukin 14	A measurement of the interleukin 14 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74810	INTLK14

Interleukin 15	A measurement of the interleukin 15 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74811	INTLK15
Interleukin 16	A measurement of the interleukin 16 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74812	INTLK16
Interleukin 17	A measurement of the interleukin 17 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74813	INTLK17
Interleukin 18	A measurement of the interleukin 18 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74814	INTLK18
Interleukin 19	A measurement of the interleukin 19 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74815	INTLK19
Interleukin 2	A measurement of the interleukin 2 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74816	INTLK2
Interleukin 20	A measurement of the interleukin 20 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74817	INTLK20
Interleukin 21	A measurement of the interleukin 21 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74818	INTLK21
Interleukin 22	A measurement of the interleukin 22 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74819	INTLK22
Interleukin 23	A measurement of the interleukin 23 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74820	INTLK23
Interleukin 24	A measurement of the interleukin 24 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74821	INTLK24

Interleukin 25	A measurement of the interleukin 25 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74822	INTLK25
Interleukin 26	A measurement of the interleukin 26 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74823	INTLK26
Interleukin 27	A measurement of the interleukin 27 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74824	INTLK27
Interleukin 28	A measurement of the interleukin 28 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74825	INTLK28
Interleukin 29	A measurement of the interleukin 29 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74826	INTLK29
Interleukin 3	A measurement of the interleukin 3 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74827	INTLK3
Interleukin 30	A measurement of the interleukin 30 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74828	INTLK30
Interleukin 31	A measurement of the interleukin 31 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74829	INTLK31
Interleukin 32	A measurement of the interleukin 32 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74830	INTLK32
Interleukin 33	A measurement of the interleukin 33 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74831	INTLK33
Interleukin 4	A measurement of the interleukin 4 in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0003065	INTLK4

Interleukin 5	A measurement of the interleukin 5 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74833	INTLK5
Interleukin 6	A measurement of the interleukin 6 in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0001926	INTLK6
Interleukin 7	A measurement of the interleukin 7 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74835	INTLK7
Interleukin 8	A measurement of the interleukin 8 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74836	INTLK8
Interleukin 9	A measurement of the interleukin 9 in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0003067	INTLK9
Islet Cell 512 Antibody	A measurement of the islet cell 512 antibody in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C81985	IC512AB
Islet Cell 512 Antigen	A measurement of the islet cell 512 antigen in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C81986	IC512AG
Islet Neogenesis Associated Protein Antibody	A measurement of the islet neogenesis associated protein antibody in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C81987	INGAPAB
Ketones	Organic compounds with a carbonyl group (C=O) bonded to two other carbon atoms as the skeleton structure. Acetone is the simplest ketone compound.	https://medlineplus.gov/lab-tests/ketones-in-blood/; https://medlineplus.gov/lab-tests/ketones-in-urine/	KETONES

Lactate Dehydrogenase	A quantitative measurement of the amount of lactate dehydrogenase present in a sample.	http://purl.obolibrary.org/obo/CMO_0000666	LDH
Large Platelets	A measurement of the large (between 4 um and 7um in diameter) platelets in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74729	PLATLRG
Large Unstained Cells	A measurement of the large, peroxidase-negative cells which cannot be further characterized (i.e. as large lymphocytes, virocytes, or stem cells) present in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74659	LGUNSCE
Large Unstained Cells/Leukocytes	A relative measure (ratio or percentage) of the large unstained cells to leukocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C79467	LGLUCLE
LDL Cholesterol	A measurement of the low density lipoprotein cholesterol in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000053	LDL
Leukemic Blasts	A measurement of the leukemic blasts (lymphoblasts that remain in an immature state even when outside the bone marrow) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74630	BLASTLM
Leukemic Blasts/Lymphocytes	A relative measurement (ratio or percentage) of the leukemic blasts (immature lymphoblasts) to mature lymphocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74641	BLSTLMLY
Leukocyte esterase	A quantitative measurement of the amount of leukocyte esterase present in a sample.	http://purl.obolibrary.org/obo/NCIT_C64856	LEUKASE
Leukocytes	A measurement of the leukocytes per unit of a biological specimen.	http://purl.obolibrary.org/obo/CMO_0002341	WBC
Lymphocyte	A measurement of the lymphocytes per unit of a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000031	LYM

Lymphocyte % of WBC	Blood Lymphocyte Count to Total Leukocyte Count Ratio	http://purl.obolibrary.org/obo/CMO_0000371	
Lymphocyte count	Blood Lymphocyte Count	http://purl.obolibrary.org/obo/CMO_0000031	
Lymphocytes Atypical	A measurement of the atypical lymphocytes per unit of a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C64818	LYMAT
Lymphocytes Atypical/Leukocytes	A relative measurement (ratio or percentage) of the atypical lymphocytes to leukocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C64819	LYMATLE
Lymphocytes/Leukocytes	A relative measurement (ratio or percentage) of the lymphocytes to leukocytes in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000371	LYMLE
Lymphoma Cells	A measurement of the malignant lymphocytes in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0001912	LYMMCE
Lymphoma Cells/Lymphocytes	A relative measurement (ratio or percentage) of the malignant lymphocytes to all lymphocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74910	LYMMCELY
Macrocytes	A measurement of the macrocytes per unit of a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C64821	MACROCY
Magnesium	A quantitative measurement of the amount of magnesium present in a sample.	http://purl.obolibrary.org/obo/CMO_0000505	MG
Malignant Cells, NOS	A measurement of the malignant cells of all types in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74660	MLIGCE
Malignant Cells, NOS/Blood Cells	A relative measurement (ratio or percentage) of the malignant cells of all types to all blood cells in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74643	MLIGCEBC

Mature Plasma Cells	A measurement of the mature plasma cells (plasmacytes) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74661	PLSMCE
Mature Plasma Cells/Lymphocytes	A relative measurement (ratio or percentage) of the mature plasma cells (plasmacytes) to all lymphocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74911	PLSMCELY
May-Hegglin Anomaly	A measurement of the May-Hegglin Anomaly (which is characterized by large, misshapen platelets and the presence of Dohle bodies in the leukocytes) in a blood specimen.	http://purl.obolibrary.org/obo/NCIT_C74614	MAYHEG
Mean Corpuscular Hemoglobin	A quantitative measurement of the mean amount of hemoglobin per erythrocyte in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000290	MCH
mean corpuscular hemoglobin concentration	The amount of hemoglobin in a given volume of packed red blood cells and is often calculated by dividing the hemoglobin concentration by the hematocrit.	http://purl.obolibrary.org/obo/CMO_0000291	MCHC
mean corpuscular hemoglobin level	The average amount of hemoglobin per red blood cell caculated by dividing the total mass of hemoglobin by the number of red blood cells in a volume of blood.	http://purl.obolibrary.org/obo/CMO_0000290	MCH
Mean Corpuscular HGB Concentration	A quantitative measurement of the mean amount of hemoglobin per erythrocytes in a specified volume of a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000291	MCHC
Mean Corpuscular Volume	A quantitative measurement of the mean volume of erythrocytes in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000038	MCV
Mean Platelet Volume	A measurement of the average size of the platelets found in a blood specimen.	http://purl.obolibrary.org/obo/CMO_0001348	MPV
Metamyelocytes	A measurement of the metamyelocytes (small, myelocytic neutrophils with an indented nucleus) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74615	METAMY

Metamyelocytes/Leukocytes	A relative measurement (ratio or percentage)of the metamyelocytes (small, myelocytic neutrophils with an indented nucleus) to all leukocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74645	METAMYLE
Microcytes	A measurement of the microcytes per unit of a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C64822	MICROCY
Milk protein	Milk Protein Measurement	http://purl.obolibrary.org/obo/CMO_0000789	
Milk protein CAP-Klasse	Milk Protein Measurement	http://purl.obolibrary.org/obo/CMO_0000789	
Monoblasts	A measurement of the monoblast cells per unit of a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74631	MONOBL
Monoblasts/Leukocytes	A relative measurement (ratio or percentage) of monoblast cells to all leukocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74646	MONOBLLE
Monocyte % of WBC	Blood Monocyte Count to Total Leukocyte Count Ratio	http://purl.obolibrary.org/obo/CMO_0000374	
Monocytes	A measurement of the monocytes per unit of a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000032	MONO
Monocytes/Leukocytes	A relative measure (ratio or percentage) of the monocytes to leukocytes in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000374	MONOLE
Myeloblasts	A measurement of the myeloblast cells per unit of a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74632	MYBLA

Myeloblasts/Leukocytes	A relative measurement (ratio or percentage) of the myeloblasts to leukocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C64825	MYBLALE
Myelocytes	A measurement of the myelocytes per unit of a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74662	MYCY
Myelocytes/Leukocytes	A relative measurement (ratio or percentage) of the myelocytes to leukocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C64826	MYCYLE
Myoglobin	A measurement of myoglobin in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C79436	MGB
Neutrophil	A measurement of the neutrophils per unit of a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000030	NEUT
Neutrophil % of WBC	Blood Neutrophil Count to Total Leukocyte Count Ratio	http://purl.obolibrary.org/obo/CMO_0000370	
Neutrophilic Metamyelocytes	A measurement of the neutrophilic metamyelocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C84822	NEUTMM
Neutrophilic Myelocytes	A measurement of the neutrophilic myelocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C84823	NEUTMY
Neutrophils Band Form	A measurement of the banded neutrophils per unit of a biological specimen.	http://purl.obolibrary.org/obo/CMO_0002336	NEUTB
Neutrophils Band Form/Leukocytes	A relative measurement (ratio or percentage) of the banded neutrophils to leukocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C64831	NEUTBLE
Neutrophils, Segmented	A measurement of the segmented neutrophils in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0002335	NEUTSG

Neutrophils, Segmented/Leukocytes	A relative measurement (ratio or percentage) of segmented neutrophils to leukocytes in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0002337	NEUTSGLE
Neutrophils/Leukocytes	A relative measurement (ratio or percentage) of the neutrophils to leukocytes in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000370	NEUTLE
Nitrite	A quantitative measurement of the amount of nitrite present in a sample.	http://purl.obolibrary.org/obo/NCIT_C64810	NITRITE
Non-HDL Cholesterol, calc	Plasma Non-HDL, Non-LDL Cholesterol Level	http://purl.obolibrary.org/obo/CMO_0002283	
Nucleated Erythrocytes	A measurement of the nucleated red blood cells (large, immature nucleated erythrocytes) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74705	RBCNUC
Nucleated Erythrocytes/Erythrocytes	A relative measurement (ratio or percentage) of the nucleated red blood cells (large, immature nucleated erythrocytes) to all erythrocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74647	RBCNURBC
Nucleated Erythrocytes/Leukocytes	A relative measurement (ratio or percentage) of nucleated erythrocytes to leukocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C82046	RBCNUCLE
Panel Reactive Antibody	An assessment of the reactivity between host immune cells and donor human leukocyte antigen. This test is most commonly carried out in subjects awaiting transplant. The recipient's blood or serum is mixed with either a panel of lymphocytes from random blood donations or a potential donor's purified human leukocyte antigens (HLA). Host reactivity is scored as a percent.	https://en.wikipedia.org/wiki/Panel-reactive_antibody	PRA

Pappenheimer Bodies	A measurement of the Pappenheimer Bodies (violet or blue staining, ferritin granules usually found along the periphery of the red blood cells) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74616	PAPPEN
Parathyroid Hormone, Intact	A measurement of the intact parathyroid hormone (consisting of amino acids 1-84 or 7-84) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74789	PTHI
Partial thromboplastin time	A measurement of the length of time that it takes for clotting to occur when reagents are added to a plasma specimen. The test is partial due to the absence of tissue factor (Factor III) from the reaction mixture.	http://purl.obolibrary.org/obo/CMO_0000210	APTT
Pelger Huet Anomaly	A measurement of the Pelger Huet Anomaly (neutrophils and eosinophils nuclei appear rodlike, spherical or dumbbell shapped) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74617	PELGERH
Pemphigoid Antibodies	A measurement of the pemphigoid antibodies in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C81988	PEMAB
percent change in hematocrit	A calculated measurement of the relative difference in hematocrit (the percentage of total blood volume that is made up of red blood cells) between a treated state and a control state or between two points in time, expressed as a percentage.	http://purl.obolibrary.org/obo/CMO_0002539	
pH	Quantity of dimension one used to express on a scale from 0 to 14 the amount-of-substance concentration of hydrogen ion of dilute aqueous solution, calculated as the logarithm of the reciprocal of hydrogen-ion concentration in gram atoms per liter.	http://purl.obolibrary.org/obo/CMO_0000379	PH
Phosphate	A measurement of the phosphate in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000504	PHOS

Plasmacytoid Lymphocytes	A measurement of the plasmacytoid lymphocytes (lymphocytes with peripherally clumped chromatin and often deep blue cytoplasm, and that appear similar to plasma cells) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74618	LYMPL
Plasmacytoid Lymphocytes/Lymphocytes	A relative measurement (ratio or percentage) of the plasmacytoid lymphocytes (lymphocytes with peripherally clumped chromatin and often deep blue cytoplasm, and that appear similar to plasma cells) to all lymphocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74648	LYMPLLY
Plasminogen Activator Inhibitor-1 Antigen	A measurement of the plasminogen activator inhibitor-1 antigen in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C81989	PAI1AG
Platelet	A measurement of the platelets per unit of a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000029	PLAT
Platelet count	Platelet Count	http://purl.obolibrary.org/obo/CMO_0000029	
Platelet Distribution Width	A mesurement of the range of platelet sizes in a blood specimen.	http://purl.obolibrary.org/obo/CMO_0001350	PDW
Poikilocytes	A measurement of the odd-shaped erythrocytes in a whole blood specimen.	http://purl.obolibrary.org/obo/NCIT_C79602	POIKILO
Poikilocytes/Erythrocytes	A relative measurement (ratio or percentage) of the poikilocytes irregularly shaped erythrocytes to all erythrocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74649	POIKRBC
Polychromasia	A measurement of the blue-staining characteristic of newly generated erythrocytes.	http://purl.obolibrary.org/obo/NCIT_C64803	POLYCHR

Polymorphonuclear leukocyte count	Polymorphonuclear leukocyte count	http://purl.bioontology.org/ontology/SNOMEDCT/116708001	
Potassium	A measurement of the potassium in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000496	K
Precursor Plasma Cells	A measurement of the precursor (blast stage) plasma cells (antibody secreting cells derived from B cells via antigen stimulation) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74619	PLSPCE
Precursor Plasma Cells/Lymphocytes	A relative measurement (ratio or percentage) of the precursor (blast stage) plasma cells (antibody secreting cells derived from B cells via antigen stimulation) to all lymphocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74650	PLSPCELY
Prolymphocytes	A measurement of the prolymphocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74620	PROLYM
Prolymphocytes/Leukocytes	A relative measurement (ratio or percentage) of prolymphocytes to leukocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C64829	PRLYMLE
Prolymphocytes/Lymphocytes	A relative measurement (ratio or percentage) of prolymphocytes to all lymphocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74651	PROLYMLY
Promonocytes	A measurement of the promonocytes per unit of a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74621	PROMONO
Promonocytes/Leukocytes	A relative measurement (ratio or percentage) of promonocytes to all leukocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74652	PROMONLE

Promyelocytes	A measurement of the promyelocytes (immature myelocytes) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74622	PROMY
Promyelocytes/Leukocytes	A relative measurement (ratio or percentage) of the promyelocytes (immature myelocytes) to all leukocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74653	PROMYLE
Prostate Specific Antigen	A measurement of the prostate specific antigen in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C17634	PSA
Protein	A measurement of a group of complex organic macromolecules composed of one or more alpha-L-amino acid chains in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000028	PROT
Protein/Creatinine	A relative measurement (ratio or percentage) of the protein to creatinine in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C79463	PROTCRT
Prothrombin time	A blood clotting measurement that evaluates the extrinsic pathway of coagulation and is expressed in units of time or percent activity.	http://purl.obolibrary.org/obo/CMO_0000211	
Rapid Plasma Reagin	A measurement of the antibodies produced by cellular damage caused by Treponema pallidum (syphilis) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74716	RPR
Reactive Lymphocytes	A measurement of the reactive lymphocytes (lymphocytes which have become large due to an antigen reaction) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74629	LYMRCT
Reactive Lymphocytes/Lymphocytes	A relative measurement (ratio or percentage) of the reactive lymphocytes (lymphocytes which have become large due to an antigen reaction) to all lymphocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74654	LYMRCTLY

Reticulocytes	A measurement of the reticulocytes per unit of a biological specimen.	http://purl.obolibrary.org/obo/CMO_0003020	RETI
Reticulocytes/Erythrocytes	A relative measurement (ratio or percentage) of reticulocytes to erythrocytes in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0003021	RETIRBC
RF	Serum Immunoglobulin M-type Rheumatoid Factor Level	http://purl.obolibrary.org/obo/CMO_0002609	
Rheumatoid Factor	A measurement of the rheumatoid factor antibody in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74717	RF
Rouleaux Formation	A measurement of the stacking of red blood cells within a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74624	ROULEAUX
SARS-CoV-2 PCR test	SARS-CoV-2 PCR test laboratory procedure	https://ncimeta.nci.nih.gov/ncimbrowser/ConceptReport.jsp?dictionary=NCI%20Metathesaurus&code=CL1382066	CUI CL1382066
Schistocytes	A measurement of the schistocytes (fragmented red blood cells) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74706	SCHISTO
serum anti-coronavirus antibody	The amount of immunoglobulin molecule with an amino acid sequence that binds to corona virus.	http://purl.obolibrary.org/obo/CMO_0003390	
serum anti-cytomegalovirus (CMV) antibody level	The amount of immunoglobulin molecule with an amino acid sequence that binds to Cytomegalovirus.	http://purl.obolibrary.org/obo/CMO_0003142	

serum anti-Epstein-Barr virus (EBV) antibody level	The amount of immunoglobulin molecule with an amino acid sequence that binds to Epstein-Barr virus.	http://purl.obolibrary.org/obo/CMO_0003143	
Sezary Cells	A measurement of the Sezary cells (atypical lymphocytes with cerebriform nuclei) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74625	SEZCE
Sezary Cells/Lymphocytes	A relative measurement (ratio or percentage) of the Sezary cells (atypical lymphocytes with cerebriform nuclei) to all lymphocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74655	SEZCELY
SGOT	Blood Aspartate Aminotransferase Activity Level	http://purl.obolibrary.org/obo/CMO_0000580	
SGPT	Blood Alanine Aminotransferase Activity Level	http://purl.obolibrary.org/obo/CMO_0000574	
Sickle Cells	A measurement of the sickle cells (sickle shaped red blood cells) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74626	SCKLCE
Sickle Cells/Erythrocytes	A relative measurement (ratio or percentage) of the sickle cells (sickle shaped red blood cells) to all erythrocytes in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74656	SCKCERBC
Smudge Cells	A measurement of the smudge cells (the nuclear remnant of a ruptured white blood cell) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74627	SMDGCE
Sodium	A measurement of the sodium in a biological specimen.	http://purl.obolibrary.org/obo/CMO_0000499	SODIUM
Specific Gravity	The density (mass per unit volume) of any material divided by that of water at a standard temperature.	https://en.wikipedia.org/wiki/Specific_gravity	SPGRAV

Spherocytes	A measurement of the spherocytes (small, sphere-shaped red blood cells) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74707	SPHERO
Stomatocytes	A measurement of the stomatocytes (red blood cells with an oval or rectangular area of central pallor, producing the appearance of a cell mouth) in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74708	STOMCY
Thymic Stromal Lymphopoietin Measurement	A measurement of the thymic stromal lymphopoietin in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C184511	TSLP
Thyroid Antibodies	A measurement of the thyroid antibodies in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C81990	THYAB
Thyroid Antimicrosomal Antibodies	A measurement of the thyroid antimicrosomal antibodies in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C81991	THYAMAB
Thyroid Antithyroglobulin Antibodies	A measurement of the thyroid antithyroglobulin antibodies in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C81992	THYATAB
Thyrotropin	A measurement of the thyrotropin in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C64813	
Thyroxine	A hormone synthesized and secreted by the thyroid gland containing four iodine atoms and is converted to triiodothyronine (T3) in the body, influencing metabolism and organ function.	http://purl.obolibrary.org/obo/CMO_0001288	T4
Tissue Plasminogen Activator Antigen	A measurement of the tissue plasminogen activator antigen in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C81993	TPAAG
TNFA	Inflammatory Exudate Tumor Necrosis Factor Level	http://purl.obolibrary.org/obo/CMO_0001435	

Triglyceride	A measurement of the triglycerides in a biological specimen..	http://purl.obolibrary.org/obo/CMO_0000118	TRIG
Triiodothyronine	A thyroid hormone containing 3 iodine atoms generally synthesized from levothyroxine, and has greater biological activity.	http://purl.obolibrary.org/obo/CMO_0001361	T3
Urea Nitrogen, Serum/Plasma	Blood Urea Nitrogen Level	http://purl.obolibrary.org/obo/CMO_0000049	
Uric Acid	Blood Uric Acid Level	http://purl.obolibrary.org/obo/CMO_0000501	
Urobilinogen	A quantitative measurement of the amount of urobilinogen present in a sample.	https://en.wikipedia.org/wiki/Urobilinogen	UROBIL
Vacuolated Neutrophils	A measurement of the neutrophils containing small vacuoles in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74628	NEUTVAC
Vitamin D3 Measurement	A measurement of the Vitamin D3 in a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C74905	VITD3
White Blood Cell Count	White Blood Cell Count	http://purl.obolibrary.org/obo/CMO_0000027	

29. **lk_lab_test_panel_name**

Name	Description	Link
name_preferred		
Autoimmune liver disease panel	An autoimmune liver disease panel is a group of tests that is done to check for autoimmune liver disease.	https://www.nlm.nih.gov/medlineplus/ency/article/003328.htm

Blood Cell Count	The determination of the number of red blood cells, white blood cells, and platelets in a blood sample.	http://purl.obolibrary.org/obo/NCIT_C28133; http://purl.bioontology.org/ontology/SNOMEDCT/252275004
Blood Cell Count with Differential	A hematologic procedure to determine the number of red blood cells, white blood cells, and platelets, including the white cell differential count and red cell morphology, in a blood sample.	http://purl.obolibrary.org/obo/NCIT_C98494
Blood Flow Cytometry	Flow cytometry used to examine and quantitate the constituents of the blood.	http://purl.obolibrary.org/obo/NCIT_C38062; http://purl.bioontology.org/ontology/SNOMEDCT/64444005
Blood Measurement	A measurement of the blood, it's contents, cells or other factors contained within the blood.	http://purl.obolibrary.org/obo/CMO_0000035
Chemistry Test	A laboratory test designed for the quantification of an organic or inorganic chemical within a biological specimen.	http://purl.obolibrary.org/obo/NCIT_C49237
Comprehensive Metabolic Panel	Comprehensive Metabolic Panel	http://purl.bioontology.org/ontology/CPT/80053
Drug Test	A laboratory test of biological material such as blood, urine, hair, saliva or sweat, used to detect the presence of a drug or its metabolites with in the body.	http://purl.obolibrary.org/obo/NCIT_C78139; http://purl.bioontology.org/ontology/SNOMEDCT/394642008
Fasting Lipid Profile	Fasting Lipid Profile	http://purl.bioontology.org/ontology/SNOMEDCT/252150008
Hormone measurement	The determination of the amount of hormone present in a sample.	https://www.cdc.gov/labstandards/pdf/hs/HoSt_Brochure.pdf

Immunology Test	Laboratory test involving interaction of antigens with specific antibodies	http://purl.obolibrary.org/obo/NCIT_C16723; http://purl.bioontology.org/ontology/SNOMEDCT/252318005
Laboratory test related to hemostasis	Laboratory test related to hemostasis	http://purl.bioontology.org/ontology/SNOMEDCT/127791007
Mixed-Meal Tolerance Test	Mixed-Meal Tolerance Test	http://www.ncbi.nlm.nih.gov/pubmed/15189492
Protein or Enzyme Type Measurement	A term that refers to a chemistry test measuring a specific protein or enzyme in the peripheral blood or body fluid.	http://purl.obolibrary.org/obo/NCIT_C64430; http://purl.bioontology.org/ontology/SNOMEDCT/122444009
Renal Function Test	A laboratory procedure that evaluates the kidney function.	https://medlineplus.gov/kidneytests.html
serum antibody level	A measurement of the amount of an immunoglobulin molecule possessing a specific amino acid sequence that binds to a specific antigen, a substance introduced into an organism which initiates an immune response including the production of the very antibodies which bind to it in an effort to destroy it, in a specified sample of serum, the clear liquid that separates from blood after it has clotted completely, i.e. blood plasma from which fibrinogen has been removed. [https://www.worldcat.org/search?q=bn%3A978-1416049982 Dorland:Dorlands_Illustrated_Medical_Dictionary--31st_Ed]	http://purl.obolibrary.org/obo/CMO_0001277
Serum protein electrophoresis	Serum protein electrophoresis	http://purl.bioontology.org/ontology/SNOMEDCT/4903000

Thyroid Panel	Thyroid Panel	http://purl.bioontology.org/ontology/SNOMEDCT/35650009
Total Protein Measurement	A quantitative measurement of the amount of total protein present in a sample.	http://purl.obolibrary.org/obo/NCIT_C64858; http://purl.bioontology.org/ontology/SNOMEDCT/74040009
Urinalysis	Laboratory analysis of urine, commonly used to aid in the diagnosis of disease or to detect the presence of a specific substance. It involves examination of the urine by physical or chemical means as well as microscopic examination that helps to screen for urinary tract infections, renal disease, and diseases of other organs, that result in abnormal metabolites (break-down products) appearing in the urine.	http://purl.obolibrary.org/obo/NCIT_C17241
Vitamin measurement	Vitamin level	http://purl.obolibrary.org/obo/NCIT_C74803; http://purl.bioontology.org/ontology/SNOMEDCT/122446006

30. **lk_pcr_expression_unit**

Name	Description	Link
expression_unit_preferred		
Cq	Threshold cycle (or Ct or Cq) is a count which is defined as the fractional PCR cycle number at which the reporter fluorescence is greater than the threshold in the context of the RT-qPCR assay.	http://purl.obolibrary.org/obo/STATO_0000190
Ct	Threshold cycle (or Ct or Cq) is a count which is defined as the fractional PCR cycle number at which the reporter fluorescence is greater than the threshold in the context of the RT-qPCR assay.	http://purl.obolibrary.org/obo/STATO_0000190

Delta Ct	Difference between the target gene and the reference gene.	http://www.ncbi.nlm.nih.gov/pubmed/11846609
Delta Delta Ct	Difference between the Delta Ct target gene of the treated sample and the Delta Ct of the target gene of the untreated sample.	http://www.ncbi.nlm.nih.gov/pubmed/11846609
Gy	A SI derived unit of absorbed radiation dose. One gray is equal to an absorbed dose of one joule per kilogram of matter, or to 100 rads.	https://uts.nlm.nih.gov/uts/umls/concept/C0556636
Not Specified	No value provided. Not stated explicitly or in detail.	http://purl.obolibrary.org/obo/NCIT_C38046

31. **lk_personnel_role**

Name	Description	Link
Bioinformatician	A person practiced in using computers, databases, and math to organize and analyze biological, medical, and health information. (NCI)	https://uts.nlm.nih.gov/uts/umls/concept/C5237444
Biostatistician	A person who is responsible for the statistical aspects of the clinical or pre-clinical study. (NCI)	https://uts.nlm.nih.gov/uts/umls/concept/C4743697
Clinical Coordinator	A person to whom a clinical investigator delegates a few of the routine administrative requirements of a protocol. The duties and responsibilities of a clinical research coordinator may vary across different infrastructures. Generally, the coordinator manages the subject's clinical trial participation and provides a vital linkage between the subject, the investigator, and the sponsor. (NCI)	https://uts.nlm.nih.gov/uts/umls/concept/C4721857
Co-Principal Investigator	A person who shares the primary responsibility for the preparation, conduct, and administration of a research grant, cooperative agreement, or other sponsored project in compliance with applicable laws and regulations and institutional policy governing the conduct of clinical research. (SNOMEDCT_US)	https://uts.nlm.nih.gov/uts/umls/concept/C4708567

Consultant	An advisor participating in the service by performing evaluations and making recommendations,(HL7V3.0). Individuals referred to for expert or professional advice or services. (MSH)	https://uts.nlm.nih.gov/uts/umls/concept/C0009817
Corresponding Author	An indication that the specific author is considered the corresponding author.	https://ncit.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&version=22.04d&ns=ncit&code=C164481
Data Base Management	Database management involves the design and maintenance of electronic data storage systems to facilitate and optimize the categorization, selection, and retrieval of information. (NCI)	https://uts.nlm.nih.gov/uts/umls/concept/C0681314
Group Coordinator	A person that is responsible for the integration and interaction of work or events from an assembly of different people with diverse interests and operations.	http://purl.obolibrary.org/obo/NCIT_C51827
Investigator	An individual who conducts scientific research. In a clinical setting this individual actually conducts and/or supervises the clinical investigation and study-related procedures. The investigator monitors the safety of the trial subjects and investigational staff (under whose immediate direction an agent is administered or dispensed to a subject). The investigator collects and analyses data and study documents, and provides reports in compliance with applicable requirements.	https://ncit.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&version=22.04d&ns=ncit&code=C25936
Laboratory Personnel	Professionals, technicians, and assistants staffing LABORATORIES. (MSH)	https://uts.nlm.nih.gov/uts/umls/concept/C3178774
Manager	Someone (or something) that controls, directs, and organizes people, resources, or processes. (NCI)	https://uts.nlm.nih.gov/uts/umls/concept/C0335141

Medical Monitor	Person employed by the sponsor or clinical research organization, who is responsible for determining that a clinical study is being conducted in accordance with the protocol. A monitor's duties may include, but are not limited to, helping to plan and initiate a trial, assessing the conduct of trial, assisting in data analysis, interpretation, and extrapolation. Monitor has medical authority for the checking data and documentation from the trial and for the evaluation of its safety aspects.	http://purl.obolibrary.org/obo/NCIT_C51836
Other	A person having a Role that is some Other value not in CV Terms.	
Principal Investigator	A responsible party role played by a person responsible for the overall conduct of a study.	http://purl.obolibrary.org/obo/OBI_0000103
Program Director	A professional who holds a leadership administrative, research, or academic position within a scientific program. A program director is responsible for the overall direction in the conduct of research; provision and coordination of training and education; operations, staffing, and maintenance of research facilities; development of new research activities; developing and maintaining relationships with other agencies, programs, scientific centers and departments, as well as with communities. [Definition Source: NCI]	https://uts.nlm.nih.gov/uts/umls/concept/C1709698
Protocol Chair	A person at the primary location of research that retains the responsibility for regulation compliance and ensures the proper administration of the objectives, study design, and methodology of study. (NCI)	https://uts.nlm.nih.gov/uts/umls/concept/C1709745

responsible party role	The person or organization that has primary responsibility for the act. The responsible party is not necessarily present in an action, but is accountable for the action through the power to delegate, and the duty to review actions with the performing actor after the fact. This responsibility may be ethical, legal, contractual, fiscal, or fiduciary in nature. Example:A person who is the head of a biochemical laboratory; a sponsor for a policy or government program. (HL7V3.0)	https://uts.nlm.nih.gov/uts/umls/concept/C1555579
Site Manager	Someone (or something) that controls, directs, and organizes people, resources, or processes.	http://purl.obolibrary.org/obo/NCIT_C70652
Sub-Investigator	A worker role authorized to make study-related decisions and carry out tasks related to the study; this role occurs during the study timeline.	http://purl.obolibrary.org/obo/OBI_0000224

32. **lk_plate_type**

Name	Description
Not Specified	No plate type specified

33. **lk_preferred_time_unit**

Name	Description	Link
time_unit_preferred		
d.p.c.	Unit of Days Post Coitum (d.p.c.).	https://en.wikipedia.org/wiki/Days_post_coitum
Days	Unit of Days.	http://purl.obolibrary.org/obo/NCIT_C25301
Hours	Unit of Hours.	http://purl.obolibrary.org/obo/NCIT_C25529
Minutes	Unit of Minutes.	http://purl.obolibrary.org/obo/NCIT_C48154
Months	Unit of Months.	http://purl.obolibrary.org/obo/NCIT_C29846

Not Specified	Unit is not specified or not received. If no Unit value is received, then this is the system default value.	
Seconds	Unit of Seconds.	http://purl.obolibrary.org/obo/NCIT_C25666
Weeks	Unit of Weeks.	http://purl.obolibrary.org/obo/NCIT_C29844
Years	Unit of Years.	http://purl.obolibrary.org/obo/NCIT_C29848

34. **lk_protein_name**

Name	Description	Link
uniprot_gene_name ; uniprot_id ; protein_name_preferred		
A1BG ; A1BG_HUMAN ; P04217	Alpha-1B-glycoprotein	https://www.uniprot.org/uniprot/P04217
A2M ; A2MG_HUMAN ; P01023	Alpha-2-macroglobulin	https://www.uniprot.org/uniprot/P01023
ABCA5 ; ABCA5_HUMAN ; Q8WWZ7	ATP-binding cassette sub-family A member 5	https://www.uniprot.org/uniprot/Q8WWZ7
ABCB1 ; MDR1_HUMAN ; P08183	ATP-dependent translocase ABCB1	https://www.uniprot.org/uniprot/P08183
ABCG2 ; ABCG2_HUMAN ; Q9UNQ0	Broad substrate specificity ATP-binding cassette transporter ABCG2	https://www.uniprot.org/uniprot/Q9UNQ0
ACE ; ACE_HUMAN ; P12821	Angiotensin-converting enzyme	https://www.uniprot.org/uniprot/P12821
ACKR1 ; ACKR1_HUMAN ; Q16570	Atypical chemokine receptor 1	https://www.uniprot.org/uniprot/Q16570
ACKR3 ; ACKR3_HUMAN ; P25106	Atypical chemokine receptor 3	https://www.uniprot.org/uniprot/P25106

ACOT4 ; ACOT4_HUMAN ; Q8N9L9	Peroxisomal succinyl-coenzyme A thioesterase	https://www.uniprot.org/uniprot/Q8N9L9
ACP7 ; ACP7_HUMAN ; Q6ZNF0	Acid phosphatase type 7	https://www.uniprot.org/uniprot/Q6ZNF0
ACTB ; ACTB_HUMAN ; P60709	Actin, cytoplasmic 1	https://www.uniprot.org/uniprot/P60709
ADAM10 ; ADA10_HUMAN ; O14672	Disintegrin and metalloproteinase domain-containing protein 10	https://www.uniprot.org/uniprot/O14672
ADAM17 ; ADA17_HUMAN ; P78536	Disintegrin and metalloproteinase domain-containing protein 17	https://www.uniprot.org/uniprot/P78536
ADAM8 ; ADAM8_HUMAN ; P78325	Disintegrin and metalloproteinase domain-containing protein 8	https://www.uniprot.org/uniprot/P78325
ADAMTS13 ; ATS13_HUMAN ; Q76LX8	A disintegrin and metalloproteinase with thrombospondin motifs 13	https://www.uniprot.org/uniprot/Q76LX8
ADGRE2 ; AGRE2_HUMAN ; Q9UHX3	Adhesion G protein-coupled receptor E2	https://www.uniprot.org/uniprot/Q9UHX3
AFM ; AFAM_HUMAN ; P43652	Afamin	https://www.uniprot.org/uniprot/P43652
AFP ; FETA_HUMAN ; P02771	Alpha-fetoprotein	https://www.uniprot.org/uniprot/P02771
AGT ; ANGT_HUMAN ; P01019	Angiotensinogen	https://www.uniprot.org/uniprot/P01019
AHSG ; FETUA_HUMAN ; P02765	Alpha-2-HS-glycoprotein	https://www.uniprot.org/uniprot/P02765
AKAP9 ; AKAP9_HUMAN ; Q99996	A-kinase anchor protein 9	https://www.uniprot.org/uniprot/Q99996
ALB ; ALBU_HUMAN ; P02768	Albumin	https://www.uniprot.org/uniprot/P02768

ALCAM ; CD166_HUMAN ; Q13740	CD166 antigen	https://www.uniprot.org/uniprot/Q13740
ALK ; ALK_HUMAN ; Q9UM73	ALK tyrosine kinase receptor	https://www.uniprot.org/uniprot/Q9UM73
AMBP ; AMBP_HUMAN ; P02760	Protein AMBP	https://www.uniprot.org/uniprot/P02760
ANKRD26 ; ANR26_HUMAN ; Q9UPS8	Ankyrin repeat domain-containing protein 26	https://www.uniprot.org/uniprot/Q9UPS8
ANPEP ; AMPN_HUMAN ; P15144	Aminopeptidase N	https://www.uniprot.org/uniprot/P15144
ANXA5 ; ANXA5_HUMAN ; P08758	Annexin A5	https://www.uniprot.org/uniprot/P08758
APCS ; SAMP_HUMAN ; P02743	Serum amyloid P-component	https://www.uniprot.org/uniprot/P02743
APMAP ; APMAP_HUMAN ; Q9HDC9	Adipocyte plasma membrane-associated protein	https://www.uniprot.org/uniprot/Q9HDC9
APOA1 ; APOA1_HUMAN ; P02647	Apolipoprotein A-I	https://www.uniprot.org/uniprot/P02647
APOA2 ; APOA2_HUMAN ; P02652	Apolipoprotein A-II	https://www.uniprot.org/uniprot/P02652
APOA4 ; APOA4_HUMAN ; P06727	Apolipoprotein A-IV	https://www.uniprot.org/uniprot/P06727
APOB ; APOB_HUMAN ; P04114	Apolipoprotein B-100	https://www.uniprot.org/uniprot/P04114
APOC2 ; APOC2_HUMAN ; P02655	Apolipoprotein C-II	https://www.uniprot.org/uniprot/P02655
APOC3 ; APOC3_HUMAN ; P02656	Apolipoprotein C-III	https://www.uniprot.org/uniprot/P02656

APOC4 ; APOC4_HUMAN ; P55056	Apolipoprotein C-IV	https://www.uniprot.org/uniprot/P55056
APOD ; APOD_HUMAN ; P05090	Apolipoprotein D	https://www.uniprot.org/uniprot/P05090
APOE ; APOE_HUMAN ; P02649	Apolipoprotein E	https://www.uniprot.org/uniprot/P02649
APOH ; APOH_HUMAN ; P02749	Beta-2-glycoprotein 1	https://www.uniprot.org/uniprot/P02749
APOL1 ; APOL1_HUMAN ; O14791	Apolipoprotein L1	https://www.uniprot.org/uniprot/O14791
APOM ; APOM_HUMAN ; O95445	Apolipoprotein M	https://www.uniprot.org/uniprot/O95445
ART1 ; NAR1_HUMAN ; P52961	GPI-linked NAD(P)(+)--arginine ADP-ribosyltransferase 1	https://www.uniprot.org/uniprot/P52961
ART4 ; NAR4_HUMAN ; Q93070	Ecto-ADP-ribosyltransferase 4	https://www.uniprot.org/uniprot/Q93070
ATP1B3 ; AT1B3_HUMAN ; P54709	Sodium/potassium-transporting ATPase subunit beta-3	https://www.uniprot.org/uniprot/P54709
ATRN ; ATRN_HUMAN ; O75882	Attractin	https://www.uniprot.org/uniprot/O75882
AZGP1 ; ZA2G_HUMAN ; P25311	Zinc-alpha-2-glycoprotein	https://www.uniprot.org/uniprot/P25311
B2M ; B2MG_HUMAN ; P61769	Beta-2-microglobulin	https://www.uniprot.org/uniprot/P61769
B3GAT1 ; B3GA1_HUMAN ; Q9P2W7	Galactosylgalactosylxylosylprotein 3-beta-glucuronosyltransferase 1	https://www.uniprot.org/uniprot/Q9P2W7
BCAM ; BCAM_HUMAN ; P50895	Basal cell adhesion molecule	https://www.uniprot.org/uniprot/P50895

BCL2 ; BCL2_HUMAN ; P10415	Apoptosis regulator Bcl-2	https://www.uniprot.org/uniprot/P10415
BCL6 ; BCL6_HUMAN ; P41182	B-cell lymphoma 6 protein	https://www.uniprot.org/uniprot/P41182
BMPR1A ; BMR1A_HUMAN ; P36894	Bone morphogenetic protein receptor type-1A	https://www.uniprot.org/uniprot/P36894
BMPR1B ; BMR1B_HUMAN ; O00238	Bone morphogenetic protein receptor type-1B	https://www.uniprot.org/uniprot/O00238
BSG ; BASI_HUMAN ; P35613	Basigin	https://www.uniprot.org/uniprot/P35613
BST1 ; BST1_HUMAN ; Q10588	ADP-ribosyl cyclase/cyclic ADP-ribose hydrolase 2	https://www.uniprot.org/uniprot/Q10588
BST2 ; BST2_HUMAN ; Q10589	Bone marrow stromal antigen 2	https://www.uniprot.org/uniprot/Q10589
BTLA ; BTLA_HUMAN ; Q7Z6A9	B- and T-lymphocyte attenuator	https://www.uniprot.org/uniprot/Q7Z6A9
BTN3A1 ; BT3A1_HUMAN ; O00481	Butyrophilin subfamily 3 member A1	https://www.uniprot.org/uniprot/O00481
BUB3 ; BUB3_HUMAN ; O43684	Mitotic checkpoint protein BUB3	https://www.uniprot.org/uniprot/O43684
C12orf42 ; CL042_HUMAN ; Q96LP6	Uncharacterized protein C12orf42	https://www.uniprot.org/uniprot/Q96LP6
C1QB ; C1QB_HUMAN ; P02746	Complement C1q subcomponent subunit B	https://www.uniprot.org/uniprot/P02746
C1QC ; C1QC_HUMAN ; P02747	Complement C1q subcomponent subunit C	https://www.uniprot.org/uniprot/P02747
C1R ; C1R_HUMAN ; P00736	Complement C1r subcomponent	https://www.uniprot.org/uniprot/P00736

C1RL ; C1RL_HUMAN ; Q9NZP8	Complement C1r subcomponent-like protein	https://www.uniprot.org/uniprot/Q9NZP8
C1S ; C1S_HUMAN ; P09871	Complement C1s subcomponent	https://www.uniprot.org/uniprot/P09871
C2 ; CO2_HUMAN ; P06681	Complement C2	https://www.uniprot.org/uniprot/P06681
C3 ; CO3_HUMAN ; P01024	Complement C3	https://www.uniprot.org/uniprot/P01024
C4A ; CO4A_HUMAN ; P0C0L4	Complement C4-A	https://www.uniprot.org/uniprot/P0C0L4
C4B_2 ; CO4B_HUMAN ; P0C0L5	Complement C4-B	https://www.uniprot.org/uniprot/P0C0L5
C4BPA ; C4BPA_HUMAN ; P04003	C4b-binding protein alpha chain	https://www.uniprot.org/uniprot/P04003
C5 ; CO5_HUMAN ; P01031	Complement C5	https://www.uniprot.org/uniprot/P01031
C5AR1 ; C5AR1_HUMAN ; P21730	C5a anaphylatoxin chemotactic receptor 1	https://www.uniprot.org/uniprot/P21730
C6 ; CO6_HUMAN ; P13671	Complement component C6	https://www.uniprot.org/uniprot/P13671
C7 ; CO7_HUMAN ; P10643	Complement component C7	https://www.uniprot.org/uniprot/P10643
C8A ; CO8A_HUMAN ; P07357	Complement component C8 alpha chain	https://www.uniprot.org/uniprot/P07357
C8B ; CO8B_HUMAN ; P07358	Complement component C8 beta chain	https://www.uniprot.org/uniprot/P07358
C8G ; CO8G_HUMAN ; P07360	Complement component C8 gamma chain	https://www.uniprot.org/uniprot/P07360

C9 ; CO9_HUMAN ; P02748	Complement component C9	https://www.uniprot.org/uniprot/P02748
C9orf43 ; CI043_HUMAN ; Q8TAL5	Uncharacterized protein C9orf43	https://www.uniprot.org/uniprot/Q8TAL5
CA1 ; CAH1_HUMAN ; P00915	Carbonic anhydrase 1	https://www.uniprot.org/uniprot/P00915
CAPN10 ; CAN10_HUMAN ; Q9HC96	Calpain-10	https://www.uniprot.org/uniprot/Q9HC96
CARD9 ; CARD9_HUMAN ; Q9H257	Caspase recruitment domain-containing protein 9	https://www.uniprot.org/uniprot/Q9H257
CASP3 ; CASP3_HUMAN ; P42574	Caspase-3	https://www.uniprot.org/uniprot/P42574
CCDC168 ; CC168_HUMAN ; Q8NDH2	Coiled-coil domain-containing protein 168	https://www.uniprot.org/uniprot/Q8NDH2
CCDC18 ; CCD18_HUMAN ; Q5T9S5	Coiled-coil domain-containing protein 18	https://www.uniprot.org/uniprot/Q5T9S5
CCL1 ; CCL1_HUMAN ; P22362	C-C motif chemokine 1	https://www.uniprot.org/uniprot/P22362
CCL11 ; CCL11_HUMAN ; P51671	Eotaxin	https://www.uniprot.org/uniprot/P51671
CCL13 ; CCL13_HUMAN ; Q99616	C-C motif chemokine 13	https://www.uniprot.org/uniprot/Q99616
CCL14 ; CCL14_HUMAN ; Q16627	C-C motif chemokine 14	https://www.uniprot.org/uniprot/Q16627
CCL15 ; CCL15_HUMAN ; Q16663	C-C motif chemokine 15	https://www.uniprot.org/uniprot/Q16663
CCL16 ; CCL16_HUMAN ; O15467	C-C motif chemokine 16	https://www.uniprot.org/uniprot/O15467

CCL17 ; CCL17_HUMAN ; Q92583	C-C motif chemokine 17	https://www.uniprot.org/uniprot/Q92583
CCL18 ; CCL18_HUMAN ; P55774	C-C motif chemokine 18	https://www.uniprot.org/uniprot/P55774
CCL19 ; CCL19_HUMAN ; Q99731	C-C motif chemokine 19	https://www.uniprot.org/uniprot/Q99731
CCL2 ; CCL2_HUMAN ; P13500	C-C motif chemokine 2	https://www.uniprot.org/uniprot/P13500
CCL20 ; CCL20_HUMAN ; P78556	C-C motif chemokine 20	https://www.uniprot.org/uniprot/P78556
CCL21 ; CCL21_HUMAN ; O00585	C-C motif chemokine 21	https://www.uniprot.org/uniprot/O00585
CCL22 ; CCL22_HUMAN ; O00626	C-C motif chemokine 22	https://www.uniprot.org/uniprot/O00626
CCL23 ; CCL23_HUMAN ; P55773	C-C motif chemokine 23	https://www.uniprot.org/uniprot/P55773
CCL24 ; CCL24_HUMAN ; O00175	C-C motif chemokine 24	https://www.uniprot.org/uniprot/O00175
CCL25 ; CCL25_HUMAN ; O15444	C-C motif chemokine 25	https://www.uniprot.org/uniprot/O15444
CCL26 ; CCL26_HUMAN ; Q9Y258	C-C motif chemokine 26	https://www.uniprot.org/uniprot/Q9Y258
CCL27 ; CCL27_HUMAN ; Q9Y4X3	C-C motif chemokine 27	https://www.uniprot.org/uniprot/Q9Y4X3
CCL3 ; CCL3_HUMAN ; P10147	C-C motif chemokine 3	https://www.uniprot.org/uniprot/P10147
CCL3L3 ; CL3L1_HUMAN ; P16619	C-C motif chemokine 3-like 1	https://www.uniprot.org/uniprot/P16619

CCL4 ; CCL4_HUMAN ; P13236	C-C motif chemokine 4	https://www.uniprot.org/uniprot/P13236
CCL4L2 ; CC4L_HUMAN ; Q8NHW4	C-C motif chemokine 4-like	https://www.uniprot.org/uniprot/Q8NHW4
CCL5 ; CCL5_HUMAN ; P13501	C-C motif chemokine 5	https://www.uniprot.org/uniprot/P13501
CCL7 ; CCL7_HUMAN ; P80098	C-C motif chemokine 7	https://www.uniprot.org/uniprot/P80098
CCL8 ; CCL8_HUMAN ; P80075	C-C motif chemokine 8	https://www.uniprot.org/uniprot/P80075
CCR1 ; CCR1_HUMAN ; P32246	C-C chemokine receptor type 1	https://www.uniprot.org/uniprot/P32246
CCR10 ; CCR10_HUMAN ; P46092	C-C chemokine receptor type 10	https://www.uniprot.org/uniprot/P46092
CCR2 ; CCR2_HUMAN ; P41597	C-C chemokine receptor type 2	https://www.uniprot.org/uniprot/P41597
CCR3 ; CCR3_HUMAN ; P51677	C-C chemokine receptor type 3	https://www.uniprot.org/uniprot/P51677
CCR4 ; CCR4_HUMAN ; P51679	C-C chemokine receptor type 4	https://www.uniprot.org/uniprot/P51679
CCR5 ; CCR5_HUMAN ; P51681	C-C chemokine receptor type 5	https://www.uniprot.org/uniprot/P51681
CCR6 ; CCR6_HUMAN ; P51684	C-C chemokine receptor type 6	https://www.uniprot.org/uniprot/P51684
CCR7 ; CCR7_HUMAN ; P32248	C-C chemokine receptor type 7	https://www.uniprot.org/uniprot/P32248
CCR8 ; CCR8_HUMAN ; P51685	C-C chemokine receptor type 8	https://www.uniprot.org/uniprot/P51685

CCR9 ; CCR9_HUMAN ; P51686	C-C chemokine receptor type 9	https://www.uniprot.org/uniprot/P51686
CD101 ; IGSF2_HUMAN ; Q93033	Immunoglobulin superfamily member 2	https://www.uniprot.org/uniprot/Q93033
CD109 ; CD109_HUMAN ; Q6YHK3	CD109 antigen	https://www.uniprot.org/uniprot/Q6YHK3
CD14 ; CD14_HUMAN ; P08571	Monocyte differentiation antigen CD14	https://www.uniprot.org/uniprot/P08571
CD151 ; CD151_HUMAN ; P48509	CD151 antigen	https://www.uniprot.org/uniprot/P48509
CD160 ; BY55_HUMAN ; O95971	CD160 antigen	https://www.uniprot.org/uniprot/O95971
CD163 ; C163A_HUMAN ; Q86VB7	Scavenger receptor cysteine-rich type 1 protein M130	https://www.uniprot.org/uniprot/Q86VB7
CD164 ; MUC24_HUMAN ; Q04900	Sialomucin core protein 24	https://www.uniprot.org/uniprot/Q04900
CD177 ; CD177_HUMAN ; Q8N6Q3	CD177 antigen	https://www.uniprot.org/uniprot/Q8N6Q3
CD180 ; CD180_HUMAN ; Q99467	CD180 antigen	https://www.uniprot.org/uniprot/Q99467
CD19 ; CD19_HUMAN ; P15391	B-lymphocyte antigen CD19	https://www.uniprot.org/uniprot/P15391
CD1A ; CD1A_HUMAN ; P06126	T-cell surface glycoprotein CD1a	https://www.uniprot.org/uniprot/P06126
CD1B ; CD1B_HUMAN ; P29016	T-cell surface glycoprotein CD1b	https://www.uniprot.org/uniprot/P29016
CD1C ; CD1C_HUMAN ; P29017	T-cell surface glycoprotein CD1c	https://www.uniprot.org/uniprot/P29017

CD1D ; CD1D_HUMAN ; P15813	Antigen-presenting glycoprotein CD1d	https://www.uniprot.org/uniprot/P15813
CD1E ; CD1E_HUMAN ; P15812	T-cell surface glycoprotein CD1e, membrane-associated	https://www.uniprot.org/uniprot/P15812
CD2 ; CD2_HUMAN ; P06729	T-cell surface antigen CD2	https://www.uniprot.org/uniprot/P06729
CD200 ; OX2G_HUMAN ; P41217	OX-2 membrane glycoprotein	https://www.uniprot.org/uniprot/P41217
CD207 ; CLC4K_HUMAN ; Q9UJ71	C-type lectin domain family 4 member K	https://www.uniprot.org/uniprot/Q9UJ71
CD209 ; CD209_HUMAN ; Q9NNX6	CD209 antigen	https://www.uniprot.org/uniprot/Q9NNX6
CD22 ; CD22_HUMAN ; P20273	B-cell receptor CD22	https://www.uniprot.org/uniprot/P20273
CD226 ; CD226_HUMAN ; Q15762	CD226 antigen	https://www.uniprot.org/uniprot/Q15762
CD24 ; CD24_HUMAN ; P25063	Signal transducer CD24	https://www.uniprot.org/uniprot/P25063
CD244 ; CD244_HUMAN ; Q9BZW8	Natural killer cell receptor 2B4	https://www.uniprot.org/uniprot/Q9BZW8
CD247 ; CD3Z_HUMAN ; P20963	T-cell surface glycoprotein CD3 zeta chain	https://www.uniprot.org/uniprot/P20963
CD248 ; CD248_HUMAN ; Q9HCU0	Endosialin	https://www.uniprot.org/uniprot/Q9HCU0
CD27 ; CD27_HUMAN ; P26842	CD27 antigen	https://www.uniprot.org/uniprot/P26842
CD274 ; PD1L1_HUMAN ; Q9NZQ7	Programmed cell death 1 ligand 1	https://www.uniprot.org/uniprot/Q9NZQ7

CD276 ; CD276_HUMAN ; Q5ZPR3	CD276 antigen	https://www.uniprot.org/uniprot/Q5ZPR3
CD28 ; CD28_HUMAN ; P10747	T-cell-specific surface glycoprotein CD28	https://www.uniprot.org/uniprot/P10747
CD300A ; CLM8_HUMAN ; Q9UGN4	CMRF35-like molecule 8	https://www.uniprot.org/uniprot/Q9UGN4
CD300C ; CLM6_HUMAN ; Q08708	CMRF35-like molecule 6	https://www.uniprot.org/uniprot/Q08708
CD300E ; CLM2_HUMAN ; Q496F6	CMRF35-like molecule 2	https://www.uniprot.org/uniprot/Q496F6
CD302 ; CD302_HUMAN ; Q8IX05	CD302 antigen	https://www.uniprot.org/uniprot/Q8IX05
CD320 ; CD320_HUMAN ; Q9NPF0	CD320 antigen	https://www.uniprot.org/uniprot/Q9NPF0
CD33 ; CD33_HUMAN ; P20138	Myeloid cell surface antigen CD33	https://www.uniprot.org/uniprot/P20138
CD34 ; CD34_HUMAN ; P28906	Hematopoietic progenitor cell antigen CD34	https://www.uniprot.org/uniprot/P28906
CD36 ; CD36_HUMAN ; P16671	Platelet glycoprotein 4	https://www.uniprot.org/uniprot/P16671
CD37 ; CD37_HUMAN ; P11049	Leukocyte antigen CD37	https://www.uniprot.org/uniprot/P11049
CD38 ; CD38_HUMAN ; P28907	ADP-ribosyl cyclase/cyclic ADP-ribose hydrolase 1	https://www.uniprot.org/uniprot/P28907
CD3D ; CD3D_HUMAN ; P04234	T-cell surface glycoprotein CD3 delta chain	https://www.uniprot.org/uniprot/P04234
CD3E ; CD3E_HUMAN ; P07766	T-cell surface glycoprotein CD3 epsilon chain	https://www.uniprot.org/uniprot/P07766

CD3G ; CD3G_HUMAN ; P09693	T-cell surface glycoprotein CD3 gamma chain	https://www.uniprot.org/uniprot/P09693
CD4 ; CD4_HUMAN ; P01730	T-cell surface glycoprotein CD4	https://www.uniprot.org/uniprot/P01730
CD40 ; TNR5_HUMAN ; P25942	Tumor necrosis factor receptor superfamily member 5	https://www.uniprot.org/uniprot/P25942
CD40LG ; CD40L_HUMAN ; P29965	CD40 ligand	https://www.uniprot.org/uniprot/P29965
CD44 ; CD44_HUMAN ; P16070	CD44 antigen	https://www.uniprot.org/uniprot/P16070
CD46 ; MCP_HUMAN ; P15529	Membrane cofactor protein	https://www.uniprot.org/uniprot/P15529
CD47 ; CD47_HUMAN ; Q08722	Leukocyte surface antigen CD47	https://www.uniprot.org/uniprot/Q08722
CD48 ; CD48_HUMAN ; P09326	CD48 antigen	https://www.uniprot.org/uniprot/P09326
CD5 ; CD5_HUMAN ; P06127	T-cell surface glycoprotein CD5	https://www.uniprot.org/uniprot/P06127
CD52 ; CD52_HUMAN ; P31358	CAMPATH-1 antigen	https://www.uniprot.org/uniprot/P31358
CD53 ; CD53_HUMAN ; P19397	Leukocyte surface antigen CD53	https://www.uniprot.org/uniprot/P19397
CD55 ; DAF_HUMAN ; P08174	Complement decay-accelerating factor	https://www.uniprot.org/uniprot/P08174
CD58 ; LFA3_HUMAN ; P19256	Lymphocyte function-associated antigen 3	https://www.uniprot.org/uniprot/P19256
CD59 ; CD59_HUMAN ; P13987	CD59 glycoprotein	https://www.uniprot.org/uniprot/P13987

CD5L ; CD5L_HUMAN ; O43866	CD5 antigen-like	https://www.uniprot.org/uniprot/O43866
CD6 ; CD6_HUMAN ; P30203	T-cell differentiation antigen CD6	https://www.uniprot.org/uniprot/P30203
CD63 ; CD63_HUMAN ; P08962	CD63 antigen	https://www.uniprot.org/uniprot/P08962
CD68 ; CD68_HUMAN ; P34810	Macrosialin	https://www.uniprot.org/uniprot/P34810
CD69 ; CD69_HUMAN ; Q07108	Early activation antigen CD69	https://www.uniprot.org/uniprot/Q07108
CD7 ; CD7_HUMAN ; P09564	T-cell antigen CD7	https://www.uniprot.org/uniprot/P09564
CD70 ; CD70_HUMAN ; P32970	CD70 antigen	https://www.uniprot.org/uniprot/P32970
CD72 ; CD72_HUMAN ; P21854	B-cell differentiation antigen CD72	https://www.uniprot.org/uniprot/P21854
CD74 ; HG2A_HUMAN ; P04233	HLA class II histocompatibility antigen gamma chain	https://www.uniprot.org/uniprot/P04233
CD79A ; CD79A_HUMAN ; P11912	B-cell antigen receptor complex-associated protein alpha chain	https://www.uniprot.org/uniprot/P11912
CD79B ; CD79B_HUMAN ; P40259	B-cell antigen receptor complex-associated protein beta chain	https://www.uniprot.org/uniprot/P40259
CD80 ; CD80_HUMAN ; P33681	T-lymphocyte activation antigen CD80	https://www.uniprot.org/uniprot/P33681
CD81 ; CD81_HUMAN ; P60033	CD81 antigen	https://www.uniprot.org/uniprot/P60033
CD82 ; CD82_HUMAN ; P27701	CD82 antigen	https://www.uniprot.org/uniprot/P27701

CD83 ; CD83_HUMAN ; Q01151	CD83 antigen	https://www.uniprot.org/uniprot/Q01151
CD84 ; SLAF5_HUMAN ; Q9UIB8	SLAM family member 5	https://www.uniprot.org/uniprot/Q9UIB8
CD86 ; CD86_HUMAN ; P42081	T-lymphocyte activation antigen CD86	https://www.uniprot.org/uniprot/P42081
CD8A ; CD8A_HUMAN ; P01732	T-cell surface glycoprotein CD8 alpha chain	https://www.uniprot.org/uniprot/P01732
CD8B ; CD8B_HUMAN ; P10966	T-cell surface glycoprotein CD8 beta chain	https://www.uniprot.org/uniprot/P10966
CD9 ; CD9_HUMAN ; P21926	CD9 antigen	https://www.uniprot.org/uniprot/P21926
CD93 ; C1QR1_HUMAN ; Q9NPY3	Complement component C1q receptor	https://www.uniprot.org/uniprot/Q9NPY3
CD96 ; TACT_HUMAN ; P40200	T-cell surface protein tactile	https://www.uniprot.org/uniprot/P40200
CD97 ; CD97_HUMAN ; P48960	CD97 antigen	https://www.uniprot.org/uniprot/P48960
CD99 ; CD99_HUMAN ; P14209	CD99 antigen	https://www.uniprot.org/uniprot/P14209
CDCP1 ; CDCP1_HUMAN ; Q9H5V8	CUB domain-containing protein 1	https://www.uniprot.org/uniprot/Q9H5V8
CDH1 ; CADH1_HUMAN ; P12830	Cadherin-1	https://www.uniprot.org/uniprot/P12830
CDH2 ; CADH2_HUMAN ; P19022	Cadherin-2	https://www.uniprot.org/uniprot/P19022
CDH26 ; CAD26_HUMAN ; Q8IXH8	Cadherin-like protein 26	https://www.uniprot.org/uniprot/Q8IXH8

CDH5 ; CADH5_HUMAN ; P33151	Cadherin-5	https://www.uniprot.org/uniprot/P33151
CEACAM1 ; CEAM1_HUMAN ; P13688	Carcinoembryonic antigen-related cell adhesion molecule 1	https://www.uniprot.org/uniprot/P13688
CEACAM3 ; CEAM3_HUMAN ; P40198	Carcinoembryonic antigen-related cell adhesion molecule 3	https://www.uniprot.org/uniprot/P40198
CEACAM5 ; CEAM5_HUMAN ; P06731	Carcinoembryonic antigen-related cell adhesion molecule 5	https://www.uniprot.org/uniprot/P06731
CEACAM6 ; CEAM6_HUMAN ; P40199	Carcinoembryonic antigen-related cell adhesion molecule 6	https://www.uniprot.org/uniprot/P40199
CEACAM8 ; CEAM8_HUMAN ; P31997	Carcinoembryonic antigen-related cell adhesion molecule 8	https://www.uniprot.org/uniprot/P31997
CENPB ; CENPB_HUMAN ; P07199	Major centromere autoantigen B	https://www.uniprot.org/uniprot/P07199
CEP350 ; CE350_HUMAN ; Q5VT06	Centrosome-associated protein 350	https://www.uniprot.org/uniprot/Q5VT06
CEP63 ; CEP63_HUMAN ; Q96MT8	Centrosomal protein of 63 kDa	https://www.uniprot.org/uniprot/Q96MT8
CFB ; CFAB_HUMAN ; P00751	Complement factor B	https://www.uniprot.org/uniprot/P00751
CFD ; CFAD_HUMAN ; P00746	Complement factor D	https://www.uniprot.org/uniprot/P00746
CFH ; CFAH_HUMAN ; P08603	Complement factor H	https://www.uniprot.org/uniprot/P08603
CFHR1 ; FHR1_HUMAN ; Q03591	Complement factor H-related protein 1	https://www.uniprot.org/uniprot/Q03591
CFHR2 ; FHR2_HUMAN ; P36980	Complement factor H-related protein 2	https://www.uniprot.org/uniprot/P36980

CFHR3 ; FHR3_HUMAN ; Q02985	Complement factor H-related protein 3	https://www.uniprot.org/uniprot/Q02985
CFI ; CFAI_HUMAN ; P05156	Complement factor I	https://www.uniprot.org/uniprot/P05156
CFP ; PROP_HUMAN ; P27918	Properdin	https://www.uniprot.org/uniprot/P27918
CKLF ; CKLF_HUMAN ; Q9UBR5	Chemokine-like factor	https://www.uniprot.org/uniprot/Q9UBR5
CLCF1 ; CLCF1_HUMAN ; Q9UBD9	Cardiotrophin-like cytokine factor 1	https://www.uniprot.org/uniprot/Q9UBD9
CLEC10A ; CLC10_HUMAN ; Q8IUN9	C-type lectin domain family 10 member A	https://www.uniprot.org/uniprot/Q8IUN9
CLEC3B ; TETN_HUMAN ; P05452	Tetranectin	https://www.uniprot.org/uniprot/P05452
CLEC4C ; CLC4C_HUMAN ; Q8WTT0	C-type lectin domain family 4 member C	https://www.uniprot.org/uniprot/Q8WTT0
CLEC4M ; CLC4M_HUMAN ; Q9H2X3	C-type lectin domain family 4 member M	https://www.uniprot.org/uniprot/Q9H2X3
CLU ; CLUS_HUMAN ; P10909	Clusterin	https://www.uniprot.org/uniprot/P10909
CMTM1 ; CKLF1_HUMAN ; Q8IZ96	CKLF-like MARVEL transmembrane domain-containing protein 1	https://www.uniprot.org/uniprot/Q8IZ96
CMTM6 ; CKLF6_HUMAN ; Q9NX76	CKLF-like MARVEL transmembrane domain-containing protein 6	https://www.uniprot.org/uniprot/Q9NX76
CMTM7 ; CKLF7_HUMAN ; Q96FZ5	CKLF-like MARVEL transmembrane domain-containing protein 7	https://www.uniprot.org/uniprot/Q96FZ5
CNMD ; CNMD_HUMAN ; O75829	Leukocyte cell-derived chemotaxin 1	https://www.uniprot.org/uniprot/O75829

CNTFR ; CNTFR_HUMAN ; P26992	Ciliary neurotrophic factor receptor subunit alpha	https://www.uniprot.org/uniprot/P26992
CNTRL ; CNTRL_HUMAN ; Q7Z7A1	Centriolin	https://www.uniprot.org/uniprot/Q7Z7A1
COMP ; COMP_HUMAN ; P49747	Cartilage oligomeric matrix protein	https://www.uniprot.org/uniprot/P49747
CP ; CERU_HUMAN ; P00450	Ceruloplasmin	https://www.uniprot.org/uniprot/P00450
CPB2 ; CBPB2_HUMAN ; Q96IY4	Carboxypeptidase B2	https://www.uniprot.org/uniprot/Q96IY4
CPN1 ; CBPN_HUMAN ; P15169	Carboxypeptidase N catalytic chain	https://www.uniprot.org/uniprot/P15169
CPN2 ; CPN2_HUMAN ; P22792	Carboxypeptidase N subunit 2	https://www.uniprot.org/uniprot/P22792
CR1 ; CR1_HUMAN ; P17927	Complement receptor type 1	https://www.uniprot.org/uniprot/P17927
CR2 ; CR2_HUMAN ; P20023	Complement receptor type 2	https://www.uniprot.org/uniprot/P20023
CRISP3 ; CRIS3_HUMAN ; P54108	Cysteine-rich secretory protein 3	https://www.uniprot.org/uniprot/P54108
CRP ; CRP_HUMAN ; P02741	C-reactive protein	https://www.uniprot.org/uniprot/P02741
CSF1 ; CSF1_HUMAN ; P09603	Macrophage colony-stimulating factor 1	https://www.uniprot.org/uniprot/P09603
CSF1R ; CSF1R_HUMAN ; P07333	Macrophage colony-stimulating factor 1 receptor	https://www.uniprot.org/uniprot/P07333
CSF2 ; CSF2_HUMAN ; P04141	Granulocyte-macrophage colony-stimulating factor	https://www.uniprot.org/uniprot/P04141

CSF2RA ; CSF2R_HUMAN ; P15509	Granulocyte-macrophage colony-stimulating factor receptor subunit alpha	https://www.uniprot.org/uniprot/P15509
CSF2RB ; IL3RB_HUMAN ; P32927	Cytokine receptor common subunit beta	https://www.uniprot.org/uniprot/P32927
CSF3 ; CSF3_HUMAN ; P09919	Granulocyte colony-stimulating factor	https://www.uniprot.org/uniprot/P09919
CSF3R ; CSF3R_HUMAN ; Q99062	Granulocyte colony-stimulating factor receptor	https://www.uniprot.org/uniprot/Q99062
CST3 ; CYTC_HUMAN ; P01034	Cystatin-C	https://www.uniprot.org/uniprot/P01034
CTLA4 ; CTLA4_HUMAN ; P16410	Cytotoxic T-lymphocyte protein 4	https://www.uniprot.org/uniprot/P16410
CX3CL1 ; X3CL1_HUMAN ; P78423	Fractalkine	https://www.uniprot.org/uniprot/P78423
CX3CR1 ; CX3C1_HUMAN ; P49238	CX3C chemokine receptor 1	https://www.uniprot.org/uniprot/P49238
CXCL1 ; GROA_HUMAN ; P09341	Growth-regulated alpha protein	https://www.uniprot.org/uniprot/P09341
CXCL10 ; CXL10_HUMAN ; P02778	C-X-C motif chemokine 10	https://www.uniprot.org/uniprot/P02778
CXCL11 ; CXL11_HUMAN ; O14625	C-X-C motif chemokine 11	https://www.uniprot.org/uniprot/O14625
CXCL12 ; SDF1_HUMAN ; P48061	Stromal cell-derived factor 1	https://www.uniprot.org/uniprot/P48061
CXCL13 ; CXL13_HUMAN ; O43927	C-X-C motif chemokine 13	https://www.uniprot.org/uniprot/O43927
CXCL14 ; CXL14_HUMAN ; O95715	C-X-C motif chemokine 14	https://www.uniprot.org/uniprot/O95715

CXCL16 ; CXL16_HUMAN ; Q9H2A7	C-X-C motif chemokine 16	https://www.uniprot.org/uniprot/Q9H2A7
CXCL17 ; CXL17_HUMAN ; Q6UXB2	C-X-C motif chemokine 17	https://www.uniprot.org/uniprot/Q6UXB2
CXCL2 ; CXCL2_HUMAN ; P19875	C-X-C motif chemokine 2	https://www.uniprot.org/uniprot/P19875
CXCL3 ; CXCL3_HUMAN ; P19876	C-X-C motif chemokine 3	https://www.uniprot.org/uniprot/P19876
CXCL5 ; CXCL5_HUMAN ; P42830	C-X-C motif chemokine 5	https://www.uniprot.org/uniprot/P42830
CXCL6 ; CXCL6_HUMAN ; P80162	C-X-C motif chemokine 6	https://www.uniprot.org/uniprot/P80162
CXCL8 ; IL8_HUMAN ; P10145	Interleukin-8	https://www.uniprot.org/uniprot/P10145
CXCL9 ; CXCL9_HUMAN ; Q07325	C-X-C motif chemokine 9	https://www.uniprot.org/uniprot/Q07325
CXCR1 ; CXCR1_HUMAN ; P25024	C-X-C chemokine receptor type 1	https://www.uniprot.org/uniprot/P25024
CXCR2 ; CXCR2_HUMAN ; P25025	C-X-C chemokine receptor type 2	https://www.uniprot.org/uniprot/P25025
CXCR3 ; CXCR3_HUMAN ; P49682	C-X-C chemokine receptor type 3	https://www.uniprot.org/uniprot/P49682
CXCR4 ; CXCR4_HUMAN ; P61073	C-X-C chemokine receptor type 4	https://www.uniprot.org/uniprot/P61073
CXCR5 ; CXCR5_HUMAN ; P32302	C-X-C chemokine receptor type 5	https://www.uniprot.org/uniprot/P32302
CXCR6 ; CXCR6_HUMAN ; O00574	C-X-C chemokine receptor type 6	https://www.uniprot.org/uniprot/O00574

DDR1 ; DDR1_HUMAN ; Q08345	Epithelial discoidin domain-containing receptor 1	https://www.uniprot.org/uniprot/Q08345
DNAH5 ; DYH5_HUMAN ; Q8TE73	Dynein heavy chain 5, axonemal	https://www.uniprot.org/uniprot/Q8TE73
DPP4 ; DPP4_HUMAN ; P27487	Dipeptidyl peptidase 4	https://www.uniprot.org/uniprot/P27487
EBI3 ; IL27B_HUMAN ; Q14213	Interleukin-27 subunit beta	https://www.uniprot.org/uniprot/Q14213
ECM1 ; ECM1_HUMAN ; Q16610	Extracellular matrix protein 1	https://www.uniprot.org/uniprot/Q16610
EFEMP1 ; FBLN3_HUMAN ; Q12805	EGF-containing fibulin-like extracellular matrix protein 1	https://www.uniprot.org/uniprot/Q12805
EGF ; EGF_HUMAN ; P01133	Pro-epidermal growth factor	https://www.uniprot.org/uniprot/P01133
EGFR ; EGFR_HUMAN ; P00533	Epidermal growth factor receptor	https://www.uniprot.org/uniprot/P00533
ENG ; EGLN_HUMAN ; P17813	Endoglin	https://www.uniprot.org/uniprot/P17813
ENPEP ; AMPE_HUMAN ; Q07075	Glutamyl aminopeptidase	https://www.uniprot.org/uniprot/Q07075
ENPP3 ; ENPP3_HUMAN ; O14638	Ectonucleotide pyrophosphatase/phosphodiesterase family member 3	https://www.uniprot.org/uniprot/O14638
ENTPD1 ; ENTP1_HUMAN ; P49961	Ectonucleoside triphosphate diphosphohydrolase 1	https://www.uniprot.org/uniprot/P49961
EPCAM ; EPCAM_HUMAN ; P16422	Epithelial cell adhesion molecule	https://www.uniprot.org/uniprot/P16422
EPO ; EPO_HUMAN ; P01588	Erythropoietin	https://www.uniprot.org/uniprot/P01588

EPOR ; EPOR_HUMAN ; P19235	Erythropoietin receptor	https://www.uniprot.org/uniprot/P19235
ERBB2 ; ERBB2_HUMAN ; P04626	Receptor tyrosine-protein kinase erbB-2	https://www.uniprot.org/uniprot/P04626
F11 ; FA11_HUMAN ; P03951	Coagulation factor XI	https://www.uniprot.org/uniprot/P03951
F11R ; JAM1_HUMAN ; Q9Y624	Junctional adhesion molecule A	https://www.uniprot.org/uniprot/Q9Y624
F12 ; FA12_HUMAN ; P00748	Coagulation factor XII	https://www.uniprot.org/uniprot/P00748
F13B ; F13B_HUMAN ; P05160	Coagulation factor XIII B chain	https://www.uniprot.org/uniprot/P05160
F2 ; THRB_HUMAN ; P00734	Prothrombin	https://www.uniprot.org/uniprot/P00734
F3 ; TF_HUMAN ; P13726	Tissue factor	https://www.uniprot.org/uniprot/P13726
F5 ; FA5_HUMAN ; P12259	Coagulation factor V	https://www.uniprot.org/uniprot/P12259
F9 ; FA9_HUMAN ; P00740	Coagulation factor IX	https://www.uniprot.org/uniprot/P00740
FAS ; TNR6_HUMAN ; P25445	Tumor necrosis factor receptor superfamily member 6	https://www.uniprot.org/uniprot/P25445
FASLG ; TNFL6_HUMAN ; P48023	Tumor necrosis factor ligand superfamily member 6	https://www.uniprot.org/uniprot/P48023
FBLN1 ; FBLN1_HUMAN ; P23142	Fibulin-1	https://www.uniprot.org/uniprot/P23142
FCAR ; FCAR_HUMAN ; P24071	Immunoglobulin alpha Fc receptor	https://www.uniprot.org/uniprot/P24071

FCER2 ; FCER2_HUMAN ; P06734	Low affinity immunoglobulin epsilon Fc receptor	https://www.uniprot.org/uniprot/P06734
FCGBP ; FCGBP_HUMAN ; Q9Y6R7	IgGFc-binding protein	https://www.uniprot.org/uniprot/Q9Y6R7
FCGR1A ; FCGR1_HUMAN ; P12314	High affinity immunoglobulin gamma Fc receptor I	https://www.uniprot.org/uniprot/P12314
FCGR2A ; FCG2A_HUMAN ; P12318	Low affinity immunoglobulin gamma Fc region receptor II-a	https://www.uniprot.org/uniprot/P12318
FCGR2B ; FCG2B_HUMAN ; P31994	Low affinity immunoglobulin gamma Fc region receptor II-b	https://www.uniprot.org/uniprot/P31994
FCGR2C ; FCG2C_HUMAN ; P31995	Low affinity immunoglobulin gamma Fc region receptor II-c	https://www.uniprot.org/uniprot/P31995
FCGR3A ; FCG3A_HUMAN ; P08637	Low affinity immunoglobulin gamma Fc region receptor III-A	https://www.uniprot.org/uniprot/P08637
FCGR3B ; FCG3B_HUMAN ; O75015	Low affinity immunoglobulin gamma Fc region receptor III-B	https://www.uniprot.org/uniprot/O75015
FCN3 ; FCN3_HUMAN ; O75636	Ficolin-3	https://www.uniprot.org/uniprot/O75636
FETUB ; FETUB_HUMAN ; Q9UGM5	Fetuin-B	https://www.uniprot.org/uniprot/Q9UGM5
FGA ; FIBA_HUMAN ; P02671	Fibrinogen alpha chain	https://www.uniprot.org/uniprot/P02671
FGB ; FIBB_HUMAN ; P02675	Fibrinogen beta chain	https://www.uniprot.org/uniprot/P02675
FGF1 ; FGF1_HUMAN ; P05230	Fibroblast growth factor 1	https://www.uniprot.org/uniprot/P05230
FGF2 ; FGF2_HUMAN ; P09038	Fibroblast growth factor 2	https://www.uniprot.org/uniprot/P09038

FGFR1 ; FGFR1_HUMAN ; P11362	Fibroblast growth factor receptor 1	https://www.uniprot.org/uniprot/P11362
FGFR2 ; FGFR2_HUMAN ; P21802	Fibroblast growth factor receptor 2	https://www.uniprot.org/uniprot/P21802
FGFR3 ; FGFR3_HUMAN ; P22607	Fibroblast growth factor receptor 3	https://www.uniprot.org/uniprot/P22607
FGFR4 ; FGFR4_HUMAN ; P22455	Fibroblast growth factor receptor 4	https://www.uniprot.org/uniprot/P22455
FGG ; FIBG_HUMAN ; P02679	Fibrinogen gamma chain	https://www.uniprot.org/uniprot/P02679
FLT3 ; FLT3_HUMAN ; P36888	Receptor-type tyrosine-protein kinase FLT3	https://www.uniprot.org/uniprot/P36888
FLT3LG ; FLT3L_HUMAN ; P49771	Fms-related tyrosine kinase 3 ligand	https://www.uniprot.org/uniprot/P49771
FN1 ; FINC_HUMAN ; P02751	Fibronectin	https://www.uniprot.org/uniprot/P02751
FOXP3 ; FOXP3_HUMAN ; Q9BZS1	Forkhead box protein P3	https://www.uniprot.org/uniprot/Q9BZS1
FUT3 ; FUT3_HUMAN ; P21217	Galactoside 3(4)-L-fucosyltransferase	https://www.uniprot.org/uniprot/P21217
FUT4 ; FUT4_HUMAN ; P22083	Alpha-(1,3)-fucosyltransferase 4	https://www.uniprot.org/uniprot/P22083
FZD10 ; FZD10_HUMAN ; Q9ULW2	Frizzled-10	https://www.uniprot.org/uniprot/Q9ULW2
FZD4 ; FZD4_HUMAN ; Q9ULV1	Frizzled-4	https://www.uniprot.org/uniprot/Q9ULV1
FZD9 ; FZD9_HUMAN ; O00144	Frizzled-9	https://www.uniprot.org/uniprot/O00144

GC ; VTDB_HUMAN ; P02774	Vitamin D-binding protein	https://www.uniprot.org/uniprot/P02774
GDF15 ; GDF15_HUMAN ; Q99988	Growth/differentiation factor 15	https://www.uniprot.org/uniprot/Q99988
GGT1 ; GGT1_HUMAN ; P19440	Glutathione hydrolase 1 proenzyme	https://www.uniprot.org/uniprot/P19440
GOLGA6L2 ; GG6L2_HUMAN ; Q8N9W4	Golgin subfamily A member 6-like protein 2	https://www.uniprot.org/uniprot/Q8N9W4
GOLGA8A ; GOG8A_HUMAN ; A7E2F4	Golgin subfamily A member 8A	https://www.uniprot.org/uniprot/A7E2F4
GP1BA ; GP1BA_HUMAN ; P07359	Platelet glycoprotein Ib alpha chain	https://www.uniprot.org/uniprot/P07359
GP1BB ; GP1BB_HUMAN ; P13224	Platelet glycoprotein Ib beta chain	https://www.uniprot.org/uniprot/P13224
GP5 ; GPV_HUMAN ; P40197	Platelet glycoprotein V	https://www.uniprot.org/uniprot/P40197
GP9 ; GPIX_HUMAN ; P14770	Platelet glycoprotein IX	https://www.uniprot.org/uniprot/P14770
GPR15 ; GPR15_HUMAN ; P49685	G-protein coupled receptor 15	https://www.uniprot.org/uniprot/P49685
GSN ; GELS_HUMAN ; P06396	Gelsolin	https://www.uniprot.org/uniprot/P06396
GYPA ; GLPA_HUMAN ; P02724	Glycophorin-A	https://www.uniprot.org/uniprot/P02724
GYPB ; GLPB_HUMAN ; P06028	Glycophorin-B	https://www.uniprot.org/uniprot/P06028
GYPC ; GLPC_HUMAN ; P04921	Glycophorin-C	https://www.uniprot.org/uniprot/P04921

GZMB ; GRAB_HUMAN ; P10144	Granzyme B	https://www.uniprot.org/uniprot/P10144
HABP2 ; HABP2_HUMAN ; Q14520	Hyaluronan-binding protein 2	https://www.uniprot.org/uniprot/Q14520
HBA2 ; HBA_HUMAN ; P69905	Hemoglobin subunit alpha	https://www.uniprot.org/uniprot/P69905
HBB ; HBB_HUMAN ; P68871	Hemoglobin subunit beta	https://www.uniprot.org/uniprot/P68871
HBD ; HBD_HUMAN ; P02042	Hemoglobin subunit delta	https://www.uniprot.org/uniprot/P02042
HECTD4 ; HECD4_HUMAN ; Q9Y4D8	Probable E3 ubiquitin-protein ligase HECTD4	https://www.uniprot.org/uniprot/Q9Y4D8
HELZ2 ; HELZ2_HUMAN ; Q9BYK8	Helicase with zinc finger domain 2	https://www.uniprot.org/uniprot/Q9BYK8
HGF ; HGF_HUMAN ; P14210	Hepatocyte growth factor	https://www.uniprot.org/uniprot/P14210
HGFAC ; HGFA_HUMAN ; Q04756	Hepatocyte growth factor activator	https://www.uniprot.org/uniprot/Q04756
HLA-A ; HLAA_HUMAN ; P01892	HLA class I histocompatibility antigen, A alpha chain	https://www.uniprot.org/uniprot/P04439
HLA-DRA ; DRA_HUMAN ; P01903	HLA class II histocompatibility antigen, DR alpha chain	https://www.uniprot.org/uniprot/P01903
HLA-E ; HLAE_HUMAN ; P13747	HLA class I histocompatibility antigen, alpha chain E	https://www.uniprot.org/uniprot/P13747
HLA-G ; HLAG_HUMAN ; P17693	HLA class I histocompatibility antigen, alpha chain G	https://www.uniprot.org/uniprot/P17693
HMMR ; HMMR_HUMAN ; O75330	Hyaluronan mediated motility receptor	https://www.uniprot.org/uniprot/O75330

HP ; HPT_HUMAN ; P00738	Haptoglobin	https://www.uniprot.org/uniprot/P00738
HPR ; HPTR_HUMAN ; P00739	Haptoglobin-related protein	https://www.uniprot.org/uniprot/P00739
HPX ; HEMO_HUMAN ; P02790	Hemopexin	https://www.uniprot.org/uniprot/P02790
HRG ; HRG_HUMAN ; P04196	Histidine-rich glycoprotein	https://www.uniprot.org/uniprot/P04196
HUWE1 ; HUWE1_HUMAN ; Q7Z6Z7	E3 ubiquitin-protein ligase HUWE1	https://www.uniprot.org/uniprot/Q7Z6Z7
ICAM2 ; ICAM2_HUMAN ; P13598	Intercellular adhesion molecule 2	https://www.uniprot.org/uniprot/P13598
ICAM3 ; ICAM3_HUMAN ; P32942	Intercellular adhesion molecule 3	https://www.uniprot.org/uniprot/P32942
ICAM4 ; ICAM4_HUMAN ; Q14773	Intercellular adhesion molecule 4	https://www.uniprot.org/uniprot/Q14773
ICOS ; ICOS_HUMAN ; Q9Y6W8	Inducible T-cell costimulator	https://www.uniprot.org/uniprot/Q9Y6W8
ICOSLG ; ICOSL_HUMAN ; O75144	ICOS ligand	https://www.uniprot.org/uniprot/O75144
IFITM1 ; IFM1_HUMAN ; P13164	Interferon-induced transmembrane protein 1	https://www.uniprot.org/uniprot/P13164
IFNA10 ; IFN10_HUMAN ; P01566	Interferon alpha-10	https://www.uniprot.org/uniprot/P01566
IFNA14 ; IFN14_HUMAN ; P01570	Interferon alpha-14	https://www.uniprot.org/uniprot/P01570
IFNA16 ; IFN16_HUMAN ; P05015	Interferon alpha-16	https://www.uniprot.org/uniprot/P05015

IFNA17 ; IFN17_HUMAN ; P01571	Interferon alpha-17	https://www.uniprot.org/uniprot/P01571
IFNA2 ; IFNA2_HUMAN ; P01563	Interferon alpha-2	https://www.uniprot.org/uniprot/P01563
IFNA21 ; IFN21_HUMAN ; P01568	Interferon alpha-21	https://www.uniprot.org/uniprot/P01568
IFNA4 ; IFNA4_HUMAN ; P05014	Interferon alpha-4	https://www.uniprot.org/uniprot/P05014
IFNA5 ; IFNA5_HUMAN ; P01569	Interferon alpha-5	https://www.uniprot.org/uniprot/P01569
IFNA6 ; IFNA6_HUMAN ; P05013	Interferon alpha-6	https://www.uniprot.org/uniprot/P05013
IFNA7 ; IFNA7_HUMAN ; P01567	Interferon alpha-7	https://www.uniprot.org/uniprot/P01567
IFNA8 ; IFNA8_HUMAN ; P32881	Interferon alpha-8	https://www.uniprot.org/uniprot/P32881
IFNAR1 ; INAR1_HUMAN ; P17181	Interferon alpha/beta receptor 1	https://www.uniprot.org/uniprot/P17181
IFNAR2 ; INAR2_HUMAN ; P48551	Interferon alpha/beta receptor 2	https://www.uniprot.org/uniprot/P48551
IFNB1 ; IFNB_HUMAN ; P01574	Interferon beta	https://www.uniprot.org/uniprot/P01574
IFNE ; IFNE_HUMAN ; Q86WN2	Interferon epsilon	https://www.uniprot.org/uniprot/Q86WN2
IFNG ; IFNG_HUMAN ; P01579	Interferon gamma	https://www.uniprot.org/uniprot/P01579
IFNGR1 ; INGR1_HUMAN ; P15260	Interferon gamma receptor 1	https://www.uniprot.org/uniprot/P15260

IFNGR2 ; INGR2_HUMAN ; P38484	Interferon gamma receptor 2	https://www.uniprot.org/uniprot/P38484
IFNK ; IFNK_HUMAN ; Q9P0W0	Interferon kappa	https://www.uniprot.org/uniprot/Q9P0W0
IFNL1 ; IFNL1_HUMAN ; Q8IU54	Interferon lambda-1	https://www.uniprot.org/uniprot/Q8IU54
IFNL2 ; IFNL2_HUMAN ; Q8IZJ0	Interferon lambda-2	https://www.uniprot.org/uniprot/Q8IZJ0
IFNL3 ; IFNL3_HUMAN ; Q8IZI9	Interferon lambda-3	https://www.uniprot.org/uniprot/Q8IZI9
IFNLR1 ; INLR1_HUMAN ; Q8IU57	Interferon lambda receptor 1	https://www.uniprot.org/uniprot/Q8IU57
IGF1R ; IGF1R_HUMAN ; P08069	Insulin-like growth factor 1 receptor	https://www.uniprot.org/uniprot/P08069
IGF2 ; IGF2_HUMAN ; P01344	Insulin-like growth factor II	https://www.uniprot.org/uniprot/P01344
IGF2R ; MPRI_HUMAN ; P11717	Cation-independent mannose-6-phosphate receptor	https://www.uniprot.org/uniprot/P11717
IGFALS ; ALS_HUMAN ; P35858	Insulin-like growth factor-binding protein complex acid labile subunit	https://www.uniprot.org/uniprot/P35858
IGFBP2 ; IBP2_HUMAN ; P18065	Insulin-like growth factor-binding protein 2	https://www.uniprot.org/uniprot/P18065
IGFBP3 ; IBP3_HUMAN ; P17936	Insulin-like growth factor-binding protein 3	https://www.uniprot.org/uniprot/P17936
IGHA1 ; IGHA1_HUMAN ; P01876	Immunoglobulin heavy constant alpha 1	https://www.uniprot.org/uniprot/P01876
IGHA2 ; IGHA2_HUMAN ; P01877	Immunoglobulin heavy constant alpha 2	https://www.uniprot.org/uniprot/P01877

IGHD ; IGHD_HUMAN ; P01880	Immunoglobulin heavy constant delta	https://www.uniprot.org/uniprot/P01880
IGHG1 ; IGHG1_HUMAN ; P01857	Immunoglobulin heavy constant gamma 1	https://www.uniprot.org/uniprot/P01857
IGHG2 ; IGHG2_HUMAN ; P01859	Immunoglobulin heavy constant gamma 2	https://www.uniprot.org/uniprot/P01859
IGHG3 ; IGHG3_HUMAN ; P01860	Immunoglobulin heavy constant gamma 3	https://www.uniprot.org/uniprot/P01860
IGHG4 ; IGHG4_HUMAN ; P01861	Immunoglobulin heavy constant gamma 4	https://www.uniprot.org/uniprot/P01861
IGHM ; IGHM_HUMAN ; P01871	Immunoglobulin heavy constant mu	https://www.uniprot.org/uniprot/P01871
IGHV1-18 ; HV118_HUMAN ; A0A0C4DH31	Immunoglobulin heavy variable 1-18	https://www.uniprot.org/uniprot/A0A0C4DH31
IGHV1-2 ; HV102_HUMAN ; P23083	Immunoglobulin heavy variable 1-2	https://www.uniprot.org/uniprot/P23083
IGHV1-69 ; HV169_HUMAN ; P01742	Immunoglobulin heavy variable 1-69	https://www.uniprot.org/uniprot/P01742
IGHV2-26 ; HV226_HUMAN ; A0A0B4J1V2	Immunoglobulin heavy variable 2-26	https://www.uniprot.org/uniprot/A0A0B4J1V2
IGHV2-70 ; HV270_HUMAN ; P01814	Immunoglobulin heavy variable 2-70	https://www.uniprot.org/uniprot/P01814
IGHV3-11 ; HV311_HUMAN ; P01762	Immunoglobulin heavy variable 3-11	https://www.uniprot.org/uniprot/P01762
IGHV3-13 ; HV313_HUMAN ; P01766	Immunoglobulin heavy variable 3-13	https://www.uniprot.org/uniprot/P01766
IGHV3-15 ; HV315_HUMAN ; A0A0B4J1V0	Immunoglobulin heavy variable 3-15	https://www.uniprot.org/uniprot/A0A0B4J1V0

IGHV3-23 ; HV323_HUMAN ; P01764	Immunoglobulin heavy variable 3-23	https://www.uniprot.org/uniprot/P01764
IGHV3-49 ; HV349_HUMAN ; A0A0A0MS15	Immunoglobulin heavy variable 3-49	https://www.uniprot.org/uniprot/A0A0A0MS15
IGHV3-7 ; HV307_HUMAN ; P01780	Immunoglobulin heavy variable 3-7	https://www.uniprot.org/uniprot/P01780
IGHV3-72 ; HV372_HUMAN ; A0A0B4J1Y9	Immunoglobulin heavy variable 3-72	https://www.uniprot.org/uniprot/A0A0B4J1Y9
IGHV3-74 ; HV374_HUMAN ; A0A0B4J1X5	Immunoglobulin heavy variable 3-74	https://www.uniprot.org/uniprot/A0A0B4J1X5
IGHV5-10-1 ; HV5X1_HUMAN ; A0A0J9YXX1	Immunoglobulin heavy variable 5-10-1	https://www.uniprot.org/uniprot/A0A0J9YXX1
IGHV5-51 ; HV551_HUMAN ; A0A0C4DH38	Immunoglobulin heavy variable 5-51	https://www.uniprot.org/uniprot/A0A0C4DH38
IGKC ; IGKC_HUMAN ; P01834	Immunoglobulin kappa constant	https://www.uniprot.org/uniprot/P01834
IGKV1-17 ; KV117_HUMAN ; P01599	Immunoglobulin kappa variable 1-17	https://www.uniprot.org/uniprot/P01599
IGKV1-33 ; KV133_HUMAN ; P01594	Immunoglobulin kappa variable 1-33	https://www.uniprot.org/uniprot/P01594
IGKV1-5 ; KV105_HUMAN ; P01602	Immunoglobulin kappa variable 1-5	https://www.uniprot.org/uniprot/P01602
IGKV1-8 ; KV108_HUMAN ; A0A0C4DH67	Immunoglobulin kappa variable 1-8	https://www.uniprot.org/uniprot/A0A0C4DH67
IGKV1D-12 ; KVD12_HUMAN ; P01611	Immunoglobulin kappa variable 1D-12	https://www.uniprot.org/uniprot/P01611
IGKV1D-13 ; KVD13_HUMAN ; A0A0B4J2D9	Immunoglobulin kappa variable 1D-13	https://www.uniprot.org/uniprot/A0A0B4J2D9

IGKV1D-33 ; KVD33_HUMAN ; P01593	Immunoglobulin kappa variable 1D-33	https://www.uniprot.org/uniprot/P01593
IGKV2-30 ; KV230_HUMAN ; P06310	Immunoglobulin kappa variable 2-30	https://www.uniprot.org/uniprot/P06310
IGKV2D-28 ; KVD28_HUMAN ; P01615	Immunoglobulin kappa variable 2D-28	https://www.uniprot.org/uniprot/P01615
IGKV3-20 ; KV320_HUMAN ; P01619	Immunoglobulin kappa variable 3-20	https://www.uniprot.org/uniprot/P01619
IGKV3-7 ; KV37_HUMAN ; A0A075B6H7	Probable non-functional immunoglobulin kappa variable 3-7	https://www.uniprot.org/uniprot/A0A075B6H7
IGKV3D-11 ; KVD11_HUMAN ; A0A0A0MRZ8	Immunoglobulin kappa variable 3D-11	https://www.uniprot.org/uniprot/A0A0A0MRZ8
IGKV3D-15 ; KVD15_HUMAN ; A0A087WSY6	Immunoglobulin kappa variable 3D-15	https://www.uniprot.org/uniprot/A0A087WSY6
IGKV3D-20 ; KVD20_HUMAN ; A0A0C4DH25	Immunoglobulin kappa variable 3D-20	https://www.uniprot.org/uniprot/A0A0C4DH25
IGKV4-1 ; KV401_HUMAN ; P06312	Immunoglobulin kappa variable 4-1	https://www.uniprot.org/uniprot/P06312
IGKV6D-21 ; KVD21_HUMAN ; A0A0A0MT36	Immunoglobulin kappa variable 6D-21	https://www.uniprot.org/uniprot/A0A0A0MT36
IGLC2 ; IGLC2_HUMAN ; P0DOY2	Immunoglobulin lambda constant 2	https://www.uniprot.org/uniprot/P0DOY2
IGLC3 ; IGLC3_HUMAN ; P0DOY3	Immunoglobulin lambda constant 3	https://www.uniprot.org/uniprot/P0DOY3
IGLC6 ; IGLC6_HUMAN ; P0CF74	Immunoglobulin lambda constant 6	https://www.uniprot.org/uniprot/P0CF74
IGLC7 ; IGLC7_HUMAN ; A0M8Q6	Immunoglobulin lambda constant 7	https://www.uniprot.org/uniprot/A0M8Q6

IGLL1 ; IGLL1_HUMAN ; P15814	Immunoglobulin lambda-like polypeptide 1	https://www.uniprot.org/uniprot/P15814
IGLL5 ; IGLL5_HUMAN ; B9A064	Immunoglobulin lambda-like polypeptide 5	https://www.uniprot.org/uniprot/B9A064
IGLV1-40 ; LV140_HUMAN ; P01703	Immunoglobulin lambda variable 1-40	https://www.uniprot.org/uniprot/P01703
IGLV1-44 ; LV144_HUMAN ; P01699	Immunoglobulin lambda variable 1-44	https://www.uniprot.org/uniprot/P01699
IGLV1-47 ; LV147_HUMAN ; P01700	Immunoglobulin lambda variable 1-47	https://www.uniprot.org/uniprot/P01700
IGLV1-51 ; LV151_HUMAN ; P01701	Immunoglobulin lambda variable 1-51	https://www.uniprot.org/uniprot/P01701
IGLV10-54 ; LVX54_HUMAN ; A0A075B6I4	Immunoglobulin lambda variable 10-54	https://www.uniprot.org/uniprot/A0A075B6I4
IGLV2-11 ; LV211_HUMAN ; P01706	Immunoglobulin lambda variable 2-11	https://www.uniprot.org/uniprot/P01706
IGLV2-14 ; LV214_HUMAN ; P01704	Immunoglobulin lambda variable 2-14	https://www.uniprot.org/uniprot/P01704
IGLV2-18 ; LV218_HUMAN ; A0A075B6J9	Immunoglobulin lambda variable 2-18	https://www.uniprot.org/uniprot/A0A075B6J9
IGLV2-23 ; LV223_HUMAN ; P01705	Immunoglobulin lambda variable 2-23	https://www.uniprot.org/uniprot/P01705
IGLV2-33 ; LV233_HUMAN ; A0A075B6J2	Probable non-functional immunoglobulin lambda variable 2-33	https://www.uniprot.org/uniprot/A0A075B6J2
IGLV2-8 ; LV208_HUMAN ; P01709	Immunoglobulin lambda variable 2-8	https://www.uniprot.org/uniprot/P01709
IGLV3-10 ; LV310_HUMAN ; A0A075B6K4	Immunoglobulin lambda variable 3-10	https://www.uniprot.org/uniprot/A0A075B6K4

IGLV3-19 ; LV319_HUMAN ; P01714	Immunoglobulin lambda variable 3-19	https://www.uniprot.org/uniprot/P01714
IGLV3-21 ; LV321_HUMAN ; P80748	Immunoglobulin lambda variable 3-21	https://www.uniprot.org/uniprot/P80748
IGLV3-25 ; LV325_HUMAN ; P01717	Immunoglobulin lambda variable 3-25	https://www.uniprot.org/uniprot/P01717
IGLV3-27 ; LV327_HUMAN ; P01718	Immunoglobulin lambda variable 3-27	https://www.uniprot.org/uniprot/P01718
IGLV3-9 ; LV39_HUMAN ; A0A075B6K5	Immunoglobulin lambda variable 3-9	https://www.uniprot.org/uniprot/A0A075B6K5
IGLV4-69 ; LV469_HUMAN ; A0A075B6H9	Immunoglobulin lambda variable 4-69	https://www.uniprot.org/uniprot/A0A075B6H9
IGLV5-45 ; LV545_HUMAN ; A0A087WSX0	Immunoglobulin lambda variable 5-45	https://www.uniprot.org/uniprot/A0A087WSX0
IGLV7-43 ; LV743_HUMAN ; P04211	Immunoglobulin lambda variable 7-43	https://www.uniprot.org/uniprot/P04211
IGLV7-46 ; LV746_HUMAN ; A0A075B6I9	Immunoglobulin lambda variable 7-46	https://www.uniprot.org/uniprot/A0A075B6I9
IGLV8-61 ; LV861_HUMAN ; A0A075B6I0	Immunoglobulin lambda variable 8-61	https://www.uniprot.org/uniprot/A0A075B6I0
IGSF8 ; IGSF8_HUMAN ; Q969P0	Immunoglobulin superfamily member 8	https://www.uniprot.org/uniprot/Q969P0
IL10 ; IL10_HUMAN ; P22301	Interleukin-10	https://www.uniprot.org/uniprot/P22301
IL10RA ; I10R1_HUMAN ; Q13651	Interleukin-10 receptor subunit alpha	https://www.uniprot.org/uniprot/Q13651
IL10RB ; I10R2_HUMAN ; Q08334	Interleukin-10 receptor subunit beta	https://www.uniprot.org/uniprot/Q08334

IL11 ; IL11_HUMAN ; P20809	Interleukin-11	https://www.uniprot.org/uniprot/P20809
IL11RA ; I11RA_HUMAN ; Q14626	Interleukin-11 receptor subunit alpha	https://www.uniprot.org/uniprot/Q14626
IL12A ; IL12A_HUMAN ; P29459	Interleukin-12 subunit alpha	https://www.uniprot.org/uniprot/P29459
IL12B ; IL12B_HUMAN ; P29460	Interleukin-12 subunit beta	https://www.uniprot.org/uniprot/P29460
IL12RB1 ; I12R1_HUMAN ; P42701	Interleukin-12 receptor subunit beta-1	https://www.uniprot.org/uniprot/P42701
IL12RB2 ; I12R2_HUMAN ; Q99665	Interleukin-12 receptor subunit beta-2	https://www.uniprot.org/uniprot/Q99665
IL13 ; IL13_HUMAN ; P35225	Interleukin-13	https://www.uniprot.org/uniprot/P35225
IL13RA1 ; I13R1_HUMAN ; P78552	Interleukin-13 receptor subunit alpha-1	https://www.uniprot.org/uniprot/P78552
IL13RA2 ; I13R2_HUMAN ; Q14627	Interleukin-13 receptor subunit alpha-2	https://www.uniprot.org/uniprot/Q14627
IL15 ; IL15_HUMAN ; P40933	Interleukin-15	https://www.uniprot.org/uniprot/P40933
IL15RA ; I15RA_HUMAN ; Q13261	Interleukin-15 receptor subunit alpha	https://www.uniprot.org/uniprot/Q13261
IL16 ; IL16_HUMAN ; Q14005	Pro-interleukin-16	https://www.uniprot.org/uniprot/Q14005
IL17A ; IL17_HUMAN ; Q16552	Interleukin-17A	https://www.uniprot.org/uniprot/Q16552
IL17B ; IL17B_HUMAN ; Q9UHF5	Interleukin-17B	https://www.uniprot.org/uniprot/Q9UHF5

IL17C ; IL17C_HUMAN ; Q9P0M4	Interleukin-17C	https://www.uniprot.org/uniprot/Q9P0M4
IL17D ; IL17D_HUMAN ; Q8TAD2	Interleukin-17D	https://www.uniprot.org/uniprot/Q8TAD2
IL17F ; IL17F_HUMAN ; Q96PD4	Interleukin-17F	https://www.uniprot.org/uniprot/Q96PD4
IL17RA ; I17RA_HUMAN ; Q96F46	Interleukin-17 receptor A	https://www.uniprot.org/uniprot/Q96F46
IL18 ; IL18_HUMAN ; Q14116	Interleukin-18	https://www.uniprot.org/uniprot/Q14116
IL18R1 ; IL18R_HUMAN ; Q13478	Interleukin-18 receptor 1	https://www.uniprot.org/uniprot/Q13478
IL18RAP ; I18RA_HUMAN ; O95256	Interleukin-18 receptor accessory protein	https://www.uniprot.org/uniprot/O95256
IL19 ; IL19_HUMAN ; Q9UHD0	Interleukin-19	https://www.uniprot.org/uniprot/Q9UHD0
IL1A ; IL1A_HUMAN ; P01583	Interleukin-1 alpha	https://www.uniprot.org/uniprot/P01583
IL1B ; IL1B_HUMAN ; P01584	Interleukin-1 beta	https://www.uniprot.org/uniprot/P01584
IL1F10 ; IL1FA_HUMAN ; Q8WWZ1	Interleukin-1 family member 10	https://www.uniprot.org/uniprot/Q8WWZ1
IL1R1 ; IL1R1_HUMAN ; P14778	Interleukin-1 receptor type 1	https://www.uniprot.org/uniprot/P14778
IL1R2 ; IL1R2_HUMAN ; P27930	Interleukin-1 receptor type 2	https://www.uniprot.org/uniprot/P27930
IL1RAP ; IL1AP_HUMAN ; Q9NPH3	Interleukin-1 receptor accessory protein	https://www.uniprot.org/uniprot/Q9NPH3

IL1RN ; IL1RA_HUMAN ; P18510	Interleukin-1 receptor antagonist protein	https://www.uniprot.org/uniprot/P18510
IL2 ; IL2_HUMAN ; P60568	Interleukin-2	https://www.uniprot.org/uniprot/P60568
IL20 ; IL20_HUMAN ; Q9NYY1	Interleukin-20	https://www.uniprot.org/uniprot/Q9NYY1
IL20RA ; I20RA_HUMAN ; Q9UHF4	Interleukin-20 receptor subunit alpha	https://www.uniprot.org/uniprot/Q9UHF4
IL20RB ; I20RB_HUMAN ; Q6UXL0	Interleukin-20 receptor subunit beta	https://www.uniprot.org/uniprot/Q6UXL0
IL21 ; IL21_HUMAN ; Q9HBE4	Interleukin-21	https://www.uniprot.org/uniprot/Q9HBE4
IL21R ; IL21R_HUMAN ; Q9HBE5	Interleukin-21 receptor	https://www.uniprot.org/uniprot/Q9HBE5
IL22 ; IL22_HUMAN ; Q9GZX6	Interleukin-22	https://www.uniprot.org/uniprot/Q9GZX6
IL22RA1 ; I22R1_HUMAN ; Q8N6P7	Interleukin-22 receptor subunit alpha-1	https://www.uniprot.org/uniprot/Q8N6P7
IL22RA2 ; I22R2_HUMAN ; Q969J5	Interleukin-22 receptor subunit alpha-2	https://www.uniprot.org/uniprot/Q969J5
IL23A ; IL23A_HUMAN ; Q9NPF7	Interleukin-23 subunit alpha	https://www.uniprot.org/uniprot/Q9NPF7
IL23R ; IL23R_HUMAN ; Q5VWK5	Interleukin-23 receptor	https://www.uniprot.org/uniprot/Q5VWK5
IL24 ; IL24_HUMAN ; Q13007	Interleukin-24	https://www.uniprot.org/uniprot/Q13007
IL25 ; IL25_HUMAN ; Q9H293	Interleukin-25	https://www.uniprot.org/uniprot/Q9H293

IL26 ; IL26_HUMAN ; Q9NPH9	Interleukin-26	https://www.uniprot.org/uniprot/Q9NPH9
IL27 ; IL27A_HUMAN ; Q8NEV9	Interleukin-27 subunit alpha	https://www.uniprot.org/uniprot/Q8NEV9
IL2RA ; IL2RA_HUMAN ; P01589	Interleukin-2 receptor subunit alpha	https://www.uniprot.org/uniprot/P01589
IL2RB ; IL2RB_HUMAN ; P14784	Interleukin-2 receptor subunit beta	https://www.uniprot.org/uniprot/P14784
IL2RG ; IL2RG_HUMAN ; P31785	Cytokine receptor common subunit gamma	https://www.uniprot.org/uniprot/P31785
IL3 ; IL3_HUMAN ; P08700	Interleukin-3	https://www.uniprot.org/uniprot/P08700
IL31 ; IL31_HUMAN ; Q6EBC2	Interleukin-31	https://www.uniprot.org/uniprot/Q6EBC2
IL32 ; IL32_HUMAN ; P24001	Interleukin-32	https://www.uniprot.org/uniprot/P24001
IL33 ; IL33_HUMAN ; O95760	Interleukin-33	https://www.uniprot.org/uniprot/O95760
IL34 ; IL34_HUMAN ; Q6ZMJ4	Interleukin-34	https://www.uniprot.org/uniprot/Q6ZMJ4
IL36G ; IL36G_HUMAN ; Q9NZH8	Interleukin-36 gamma	https://www.uniprot.org/uniprot/Q9NZH8
IL36RN ; I36RA_HUMAN ; Q9UBH0	Interleukin-36 receptor antagonist protein	https://www.uniprot.org/uniprot/Q9UBH0
IL3RA ; IL3RA_HUMAN ; P26951	Interleukin-3 receptor subunit alpha	https://www.uniprot.org/uniprot/P26951
IL4 ; IL4_HUMAN ; P05112	Interleukin-4	https://www.uniprot.org/uniprot/P05112

IL4R ; IL4RA_HUMAN ; P24394	Interleukin-4 receptor subunit alpha	https://www.uniprot.org/uniprot/P24394
IL5 ; IL5_HUMAN ; P05113	Interleukin-5	https://www.uniprot.org/uniprot/P05113
IL5RA ; IL5RA_HUMAN ; Q01344	Interleukin-5 receptor subunit alpha	https://www.uniprot.org/uniprot/Q01344
IL6 ; IL6_HUMAN ; P05231	Interleukin-6	https://www.uniprot.org/uniprot/P05231
IL6R ; IL6RA_HUMAN ; P08887	Interleukin-6 receptor subunit alpha	https://www.uniprot.org/uniprot/P08887
IL6ST ; IL6RB_HUMAN ; P40189	Interleukin-6 receptor subunit beta	https://www.uniprot.org/uniprot/P40189
IL7 ; IL7_HUMAN ; P13232	Interleukin-7	https://www.uniprot.org/uniprot/P13232
IL7R ; IL7RA_HUMAN ; P16871	Interleukin-7 receptor subunit alpha	https://www.uniprot.org/uniprot/P16871
IL9 ; IL9_HUMAN ; P15248	Interleukin-9	https://www.uniprot.org/uniprot/P15248
IL9R ; IL9R_HUMAN ; Q01113	Interleukin-9 receptor	https://www.uniprot.org/uniprot/Q01113
INSM1 ; INSM1_HUMAN ; Q01101	Insulinoma-associated protein 1	https://www.uniprot.org/uniprot/Q01101
INSR ; INSR_HUMAN ; P06213	Insulin receptor	https://www.uniprot.org/uniprot/P06213
IQCG ; DRC9_HUMAN ; Q9H095	Dynein regulatory complex protein 9	https://www.uniprot.org/uniprot/Q9H095
ITGA1 ; ITA1_HUMAN ; P56199	Integrin alpha-1	https://www.uniprot.org/uniprot/P56199

ITGA2 ; ITA2_HUMAN ; P17301	Integrin alpha-2	https://www.uniprot.org/uniprot/P17301
ITGA2B ; ITA2B_HUMAN ; P08514	Integrin alpha-IIb	https://www.uniprot.org/uniprot/P08514
ITGA3 ; ITA3_HUMAN ; P26006	Integrin alpha-3	https://www.uniprot.org/uniprot/P26006
ITGA4 ; ITA4_HUMAN ; P13612	Integrin alpha-4	https://www.uniprot.org/uniprot/P13612
ITGA5 ; ITA5_HUMAN ; P08648	Integrin alpha-5	https://www.uniprot.org/uniprot/P08648
ITGA6 ; ITA6_HUMAN ; P23229	Integrin alpha-6	https://www.uniprot.org/uniprot/P23229
ITGAD ; ITAD_HUMAN ; Q13349	Integrin alpha-D	https://www.uniprot.org/uniprot/Q13349
ITGAE ; ITAE_HUMAN ; P38570	Integrin alpha-E	https://www.uniprot.org/uniprot/P38570
ITGAL ; ITAL_HUMAN ; P20701	Integrin alpha-L	https://www.uniprot.org/uniprot/P20701
ITGAM ; ITAM_HUMAN ; P11215	Integrin alpha-M	https://www.uniprot.org/uniprot/P11215
ITGAV ; ITAV_HUMAN ; P06756	Integrin alpha-V	https://www.uniprot.org/uniprot/P06756
ITGAX ; ITAX_HUMAN ; P20702	Integrin alpha-X	https://www.uniprot.org/uniprot/P20702
ITGB1 ; ITB1_HUMAN ; P05556	Integrin beta-1	https://www.uniprot.org/uniprot/P05556
ITGB2 ; ITB2_HUMAN ; P05107	Integrin beta-2	https://www.uniprot.org/uniprot/P05107

ITGB3 ; ITB3_HUMAN ; P05106	Integrin beta-3	https://www.uniprot.org/uniprot/P05106
ITGB4 ; ITB4_HUMAN ; P16144	Integrin beta-4	https://www.uniprot.org/uniprot/P16144
ITIH1 ; ITIH1_HUMAN ; P19827	Inter-alpha-trypsin inhibitor heavy chain H1	https://www.uniprot.org/uniprot/P19827
ITIH2 ; ITIH2_HUMAN ; P19823	Inter-alpha-trypsin inhibitor heavy chain H2	https://www.uniprot.org/uniprot/P19823
ITIH3 ; ITIH3_HUMAN ; Q06033	Inter-alpha-trypsin inhibitor heavy chain H3	https://www.uniprot.org/uniprot/Q06033
ITIH4 ; ITIH4_HUMAN ; Q14624	Inter-alpha-trypsin inhibitor heavy chain H4	https://www.uniprot.org/uniprot/Q14624
ITPRID2 ; ITPI2_HUMAN ; P28290	Protein ITPRID2	https://www.uniprot.org/uniprot/P28290
JAG1 ; JAG1_HUMAN ; P78504	Protein jagged-1	https://www.uniprot.org/uniprot/P78504
JAM2 ; JAM2_HUMAN ; P57087	Junctional adhesion molecule B	https://www.uniprot.org/uniprot/P57087
JCHAIN ; IGJ_HUMAN ; P01591	Immunoglobulin J chain	https://www.uniprot.org/uniprot/P01591
KDR ; VGFR2_HUMAN ; P35968	Vascular endothelial growth factor receptor 2	https://www.uniprot.org/uniprot/P35968
KEL ; KELL_HUMAN ; P23276	Kell blood group glycoprotein	https://www.uniprot.org/uniprot/P23276
KIR2DL1 ; KI2L1_HUMAN ; P43626	Killer cell immunoglobulin-like receptor 2DL1	https://www.uniprot.org/uniprot/P43626
KIR2DL2 ; KI2L2_HUMAN ; P43627	Killer cell immunoglobulin-like receptor 2DL2	https://www.uniprot.org/uniprot/P43627

KIR2DL3 ; KI2L3_HUMAN ; P43628	Killer cell immunoglobulin-like receptor 2DL3	https://www.uniprot.org/uniprot/P43628
KIR2DL4 ; KI2L4_HUMAN ; Q99706	Killer cell immunoglobulin-like receptor 2DL4	https://www.uniprot.org/uniprot/Q99706
KIR2DL5A ; KI2LA_HUMAN ; Q8N109	Killer cell immunoglobulin-like receptor 2DL5A	https://www.uniprot.org/uniprot/Q8N109
KIR2DS1 ; KI2S1_HUMAN ; Q14954	Killer cell immunoglobulin-like receptor 2DS1	https://www.uniprot.org/uniprot/Q14954
KIR2DS2 ; KI2S2_HUMAN ; P43631	Killer cell immunoglobulin-like receptor 2DS2	https://www.uniprot.org/uniprot/P43631
KIR2DS4 ; KI2S4_HUMAN ; P43632	Killer cell immunoglobulin-like receptor 2DS4	https://www.uniprot.org/uniprot/P43632
KIR2DS5 ; KI2S5_HUMAN ; Q14953	Killer cell immunoglobulin-like receptor 2DS5	https://www.uniprot.org/uniprot/Q14953
KIR3DL1 ; KI3L1_HUMAN ; P43629	Killer cell immunoglobulin-like receptor 3DL1	https://www.uniprot.org/uniprot/P43629
KIR3DL2 ; KI3L2_HUMAN ; P43630	Killer cell immunoglobulin-like receptor 3DL2	https://www.uniprot.org/uniprot/P43630
KIR3DL3 ; KI3L3_HUMAN ; Q8N743	Killer cell immunoglobulin-like receptor 3DL3	https://www.uniprot.org/uniprot/Q8N743
KIT ; KIT_HUMAN ; P10721	Mast/stem cell growth factor receptor Kit	https://www.uniprot.org/uniprot/P10721
KITLG ; SCF_HUMAN ; P21583	Kit ligand	https://www.uniprot.org/uniprot/P21583
KLKB1 ; KLKB1_HUMAN ; P03952	Plasma kallikrein	https://www.uniprot.org/uniprot/P03952
KLRB1 ; KLRB1_HUMAN ; Q12918	Killer cell lectin-like receptor subfamily B member 1	https://www.uniprot.org/uniprot/Q12918

KLRC1 ; NKG2A_HUMAN ; P26715	NKG2-A/NKG2-B type II integral membrane protein	https://www.uniprot.org/uniprot/P26715
KLRC2 ; NKG2C_HUMAN ; P26717	NKG2-C type II integral membrane protein	https://www.uniprot.org/uniprot/P26717
KLRD1 ; KLRD1_HUMAN ; Q13241	Natural killer cells antigen CD94	https://www.uniprot.org/uniprot/Q13241
KLRK1 ; NKG2D_HUMAN ; P26718	NKG2-D type II integral membrane protein	https://www.uniprot.org/uniprot/P26718
KMT2C ; KMT2C_HUMAN ; Q8NEZ4	Histone-lysine N-methyltransferase 2C	https://www.uniprot.org/uniprot/Q8NEZ4
KNG1 ; KNG1_HUMAN ; P01042	Kininogen-1	https://www.uniprot.org/uniprot/P01042
KPNA5 ; IMA6_HUMAN ; O15131	Importin subunit alpha-6	https://www.uniprot.org/uniprot/O15131
KRT1 ; K2C1_HUMAN ; P04264	Keratin, type II cytoskeletal 1	https://www.uniprot.org/uniprot/P04264
KRT10 ; K1C10_HUMAN ; P13645	Keratin, type I cytoskeletal 10	https://www.uniprot.org/uniprot/P13645
KRT17 ; K1C17_HUMAN ; Q04695	Keratin, type I cytoskeletal 17	https://www.uniprot.org/uniprot/Q04695
KRT2 ; K22E_HUMAN ; P35908	Keratin, type II cytoskeletal 2 epidermal	https://www.uniprot.org/uniprot/P35908
KRT77 ; K2C1B_HUMAN ; Q7Z794	Keratin, type II cytoskeletal 1b	https://www.uniprot.org/uniprot/Q7Z794
KRT81 ; KRT81_HUMAN ; Q14533	Keratin, type II cuticular Hb1	https://www.uniprot.org/uniprot/Q14533
KRT9 ; K1C9_HUMAN ; P35527	Keratin, type I cytoskeletal 9	https://www.uniprot.org/uniprot/P35527

KTN1 ; KTN1_HUMAN ; Q86UP2	Kinectin	https://www.uniprot.org/uniprot/Q86UP2
L1CAM ; L1CAM_HUMAN ; P32004	Neural cell adhesion molecule L1	https://www.uniprot.org/uniprot/P32004
LAG3 ; LAG3_HUMAN ; P18627	Lymphocyte activation gene 3 protein	https://www.uniprot.org/uniprot/P18627
LAIR1 ; LAIR1_HUMAN ; Q6GTX8	Leukocyte-associated immunoglobulin-like receptor 1	https://www.uniprot.org/uniprot/Q6GTX8
LAIR2 ; LAIR2_HUMAN ; Q6ISS4	Leukocyte-associated immunoglobulin-like receptor 2	https://www.uniprot.org/uniprot/Q6ISS4
LAMP1 ; LAMP1_HUMAN ; P11279	Lysosome-associated membrane glycoprotein 1	https://www.uniprot.org/uniprot/P11279
LAMP2 ; LAMP2_HUMAN ; P13473	Lysosome-associated membrane glycoprotein 2	https://www.uniprot.org/uniprot/P13473
LAMP3 ; LAMP3_HUMAN ; Q9UQV4	Lysosome-associated membrane glycoprotein 3	https://www.uniprot.org/uniprot/Q9UQV4
LBP ; LBP_HUMAN ; P18428	Lipopolysaccharide-binding protein	https://www.uniprot.org/uniprot/P18428
LCAT ; LCAT_HUMAN ; P04180	Phosphatidylcholine-sterol acyltransferase	https://www.uniprot.org/uniprot/P04180
LECT2 ; LECT2_HUMAN ; O14960	Leukocyte cell-derived chemotaxin-2	https://www.uniprot.org/uniprot/O14960
LEPR ; LEPR_HUMAN ; P48357	Leptin receptor	https://www.uniprot.org/uniprot/P48357
LGALS3BP ; LG3BP_HUMAN ; Q08380	Galectin-3-binding protein	https://www.uniprot.org/uniprot/Q08380
LIF ; LIF_HUMAN ; P15018	Leukemia inhibitory factor	https://www.uniprot.org/uniprot/P15018

LIFR ; LIFR_HUMAN ; P42702	Leukemia inhibitory factor receptor	https://www.uniprot.org/uniprot/P42702
LILRA1 ; LIRA1_HUMAN ; O75019	Leukocyte immunoglobulin-like receptor subfamily A member 1	https://www.uniprot.org/uniprot/O75019
LILRA2 ; LIRA2_HUMAN ; Q8N149	Leukocyte immunoglobulin-like receptor subfamily A member 2	https://www.uniprot.org/uniprot/Q8N149
LILRA3 ; LIRA3_HUMAN ; Q8N6C8	Leukocyte immunoglobulin-like receptor subfamily A member 3	https://www.uniprot.org/uniprot/Q8N6C8
LILRA4 ; LIRA4_HUMAN ; P59901	Leukocyte immunoglobulin-like receptor subfamily A member 4	https://www.uniprot.org/uniprot/P59901
LILRA5 ; LIRA5_HUMAN ; A6NI73	Leukocyte immunoglobulin-like receptor subfamily A member 5	https://www.uniprot.org/uniprot/A6NI73
LILRA6 ; LIRA6_HUMAN ; Q6PI73	Leukocyte immunoglobulin-like receptor subfamily A member 6	https://www.uniprot.org/uniprot/Q6PI73
LILRB1 ; LIRB1_HUMAN ; Q8NHL6	Leukocyte immunoglobulin-like receptor subfamily B member 1	https://www.uniprot.org/uniprot/Q8NHL6
LILRB2 ; LIRB2_HUMAN ; Q8N423	Leukocyte immunoglobulin-like receptor subfamily B member 2	https://www.uniprot.org/uniprot/Q8N423
LILRB3 ; LIRB3_HUMAN ; O75022	Leukocyte immunoglobulin-like receptor subfamily B member 3	https://www.uniprot.org/uniprot/O75022
LILRB4 ; LIRB4_HUMAN ; Q8NHJ6	Leukocyte immunoglobulin-like receptor subfamily B member 4	https://www.uniprot.org/uniprot/Q8NHJ6
LILRB5 ; LIRB5_HUMAN ; O75023	Leukocyte immunoglobulin-like receptor subfamily B member 5	https://www.uniprot.org/uniprot/O75023
LPA ; APOA_HUMAN ; P08519	Apolipoprotein(a)	https://www.uniprot.org/uniprot/P08519
LRG1 ; A2GL_HUMAN ; P02750	Leucine-rich alpha-2-glycoprotein	https://www.uniprot.org/uniprot/P02750

LRP1 ; LRP1_HUMAN ; Q07954	Prolow-density lipoprotein receptor-related protein 1	https://www.uniprot.org/uniprot/Q07954
LTA ; TNFB_HUMAN ; P01374	Lymphotoxin-alpha	https://www.uniprot.org/uniprot/P01374
LTB ; TNFC_HUMAN ; Q06643	Lymphotoxin-beta	https://www.uniprot.org/uniprot/Q06643
LTBR ; TNR3_HUMAN ; P36941	Tumor necrosis factor receptor superfamily member 3	https://www.uniprot.org/uniprot/P36941
LUM ; LUM_HUMAN ; P51884	Lumican	https://www.uniprot.org/uniprot/P51884
LY75 ; LY75_HUMAN ; O60449	Lymphocyte antigen 75	https://www.uniprot.org/uniprot/O60449
LY9 ; LY9_HUMAN ; Q9HBG7	T-lymphocyte surface antigen Ly-9	https://www.uniprot.org/uniprot/Q9HBG7
LYVE1 ; LYVE1_HUMAN ; Q9Y5Y7	Lymphatic vessel endothelial hyaluronic acid receptor 1	https://www.uniprot.org/uniprot/Q9Y5Y7
LYZ ; LYSC_HUMAN ; P61626	Lysozyme C	https://www.uniprot.org/uniprot/P61626
MAP3K11 ; M3K11_HUMAN ; Q16584	Mitogen-activated protein kinase kinase kinase 11	https://www.uniprot.org/uniprot/Q16584
MCAM ; MUC18_HUMAN ; P43121	Cell surface glycoprotein MUC18	https://www.uniprot.org/uniprot/P43121
MELTF ; TRFM_HUMAN ; P08582	Melanotransferrin	https://www.uniprot.org/uniprot/P08582
MET ; MET_HUMAN ; P08581	Hepatocyte growth factor receptor	https://www.uniprot.org/uniprot/P08581
MIF ; MIF_HUMAN ; P14174	Macrophage migration inhibitory factor	https://www.uniprot.org/uniprot/P14174

MKI67 ; KI67_HUMAN ; P46013	Proliferation marker protein Ki-67	https://www.uniprot.org/uniprot/P46013
MME ; NEP_HUMAN ; P08473	Neprilysin	https://www.uniprot.org/uniprot/P08473
MPL ; TPOR_HUMAN ; P40238	Thrombopoietin receptor	https://www.uniprot.org/uniprot/P40238
MRC1 ; MRC1_HUMAN ; P22897	Macrophage mannose receptor 1	https://www.uniprot.org/uniprot/P22897
MRC2 ; MRC2_HUMAN ; Q9UBG0	C-type mannose receptor 2	https://www.uniprot.org/uniprot/Q9UBG0
MS4A1 ; CD20_HUMAN ; P11836	B-lymphocyte antigen CD20	https://www.uniprot.org/uniprot/P11836
MSR1 ; MSRE_HUMAN ; P21757	Macrophage scavenger receptor types I and II	https://www.uniprot.org/uniprot/P21757
MST1 ; HGFL_HUMAN ; P26927	Hepatocyte growth factor-like protein	https://www.uniprot.org/uniprot/P26927
MST1R ; RON_HUMAN ; Q04912	Macrophage-stimulating protein receptor	https://www.uniprot.org/uniprot/Q04912
MUC1 ; MUC1_HUMAN ; P15941	Mucin-1	https://www.uniprot.org/uniprot/P15941
MYZAP ; MYZAP_HUMAN ; P0CAP1	Myocardial zonula adherens protein	https://www.uniprot.org/uniprot/P0CAP1
N4BP3 ; N4BP3_HUMAN ; O15049	NEDD4-binding protein 3	https://www.uniprot.org/uniprot/O15049
NCAM1 ; NCAM1_HUMAN ; P13591	Neural cell adhesion molecule 1	https://www.uniprot.org/uniprot/P13591
NCR1 ; NCTR1_HUMAN ; O76036	Natural cytotoxicity triggering receptor 1	https://www.uniprot.org/uniprot/O76036

NCR2 ; NCTR2_HUMAN ; O95944	Natural cytotoxicity triggering receptor 2	https://www.uniprot.org/uniprot/O95944
NCR3 ; NCTR3_HUMAN ; O14931	Natural cytotoxicity triggering receptor 3	https://www.uniprot.org/uniprot/O14931
NECTIN1 ; NECT1_HUMAN ; Q15223	Nectin-1	https://www.uniprot.org/uniprot/Q15223
NECTIN2 ; NECT2_HUMAN ; Q92692	Nectin-2	https://www.uniprot.org/uniprot/Q92692
NECTIN3 ; NECT3_HUMAN ; Q9NQS3	Nectin-3	https://www.uniprot.org/uniprot/Q9NQS3
NGFR ; TNR16_HUMAN ; P08138	Tumor necrosis factor receptor superfamily member 16	https://www.uniprot.org/uniprot/P08138
NRP1 ; NRP1_HUMAN ; O14786	Neuropilin-1	https://www.uniprot.org/uniprot/O14786
NT5E ; 5NTD_HUMAN ; P21589	5'-nucleotidase	https://www.uniprot.org/uniprot/P21589
NUCB1 ; NUCB1_HUMAN ; Q02818	Nucleobindin-1	https://www.uniprot.org/uniprot/Q02818
ORM1 ; A1AG1_HUMAN ; P02763	Alpha-1-acid glycoprotein 1	https://www.uniprot.org/uniprot/P02763
ORM2 ; A1AG2_HUMAN ; P19652	Alpha-1-acid glycoprotein 2	https://www.uniprot.org/uniprot/P19652
OSM ; ONCM_HUMAN ; P13725	Oncostatin-M	https://www.uniprot.org/uniprot/P13725
OSMR ; OSMR_HUMAN ; Q99650	Oncostatin-M-specific receptor subunit beta	https://www.uniprot.org/uniprot/Q99650
PACRGL ; PACRL_HUMAN ; Q8N7B6	PACRG-like protein	https://www.uniprot.org/uniprot/Q8N7B6

PARP14 ; PAR14_HUMAN ; Q460N5	Protein mono-ADP-ribosyltransferase PARP14	https://www.uniprot.org/uniprot/Q460N5
PDCD1 ; PDCD1_HUMAN ; Q15116	Programmed cell death protein 1	https://www.uniprot.org/uniprot/Q15116
PDCD1LG2 ; PD1L2_HUMAN ; Q9BQ51	Programmed cell death 1 ligand 2	https://www.uniprot.org/uniprot/Q9BQ51
PDGFA ; PDGFA_HUMAN ; P04085	Platelet-derived growth factor subunit A	https://www.uniprot.org/uniprot/P04085
PDGFB ; PDGFB_HUMAN ; P01127	Platelet-derived growth factor subunit B	https://www.uniprot.org/uniprot/P01127
PDGFRA ; PGFRA_HUMAN ; P16234	Platelet-derived growth factor receptor alpha	https://www.uniprot.org/uniprot/P16234
PDGFRB ; PGFRB_HUMAN ; P09619	Platelet-derived growth factor receptor beta	https://www.uniprot.org/uniprot/P09619
PECAM1 ; PECA1_HUMAN ; P16284	Platelet endothelial cell adhesion molecule	https://www.uniprot.org/uniprot/P16284
PER2 ; PER2_HUMAN ; O15055	Period circadian protein homolog 2	https://www.uniprot.org/uniprot/O15055
PF4 ; PLF4_HUMAN ; P02776	Platelet factor 4	https://www.uniprot.org/uniprot/P02776
PF4V1 ; PF4V_HUMAN ; P10720	Platelet factor 4 variant	https://www.uniprot.org/uniprot/P10720
PFKP ; PFKAP_HUMAN ; Q01813	ATP-dependent 6-phosphofructokinase, platelet type	https://www.uniprot.org/uniprot/Q01813
PGLYRP2 ; PGRP2_HUMAN ; Q96PD5	N-acetylmuramoyl-L-alanine amidase	https://www.uniprot.org/uniprot/Q96PD5
PLAUR ; UPAR_HUMAN ; Q03405	Urokinase plasminogen activator surface receptor	https://www.uniprot.org/uniprot/Q03405

PLG ; PLMN_HUMAN ; P00747	Plasminogen	https://www.uniprot.org/uniprot/P00747
PLXNC1 ; PLXC1_HUMAN ; O60486	Plexin-C1	https://www.uniprot.org/uniprot/O60486
PON1 ; PON1_HUMAN ; P27169	Serum paraoxonase/arylesterase 1	https://www.uniprot.org/uniprot/P27169
PPBP ; CXCL7_HUMAN ; P02775	Platelet basic protein	https://www.uniprot.org/uniprot/P02775
PRDX2 ; PRDX2_HUMAN ; P32119	Peroxiredoxin-2	https://www.uniprot.org/uniprot/P32119
PRF1 ; PERF_HUMAN ; P14222	Perforin-1	https://www.uniprot.org/uniprot/P14222
PRG4 ; PRG4_HUMAN ; Q92954	Proteoglycan 4	https://www.uniprot.org/uniprot/Q92954
PRICKLE2 ; PRIC2_HUMAN ; Q7Z3G6	Prickle-like protein 2	https://www.uniprot.org/uniprot/Q7Z3G6
PRNP ; APRIO_HUMAN ; F7VJQ1	Alternative prion protein	https://www.uniprot.org/uniprot/F7VJQ1
PROC ; PROC_HUMAN ; P04070	Vitamin K-dependent protein C	https://www.uniprot.org/uniprot/P04070
PROCR ; EPCR_HUMAN ; Q9UNN8	Endothelial protein C receptor	https://www.uniprot.org/uniprot/Q9UNN8
PROM1 ; PROM1_HUMAN ; O43490	Prominin-1	https://www.uniprot.org/uniprot/O43490
PROS1 ; PROS_HUMAN ; P07225	Vitamin K-dependent protein S	https://www.uniprot.org/uniprot/P07225
PROZ ; PROZ_HUMAN ; P22891	Vitamin K-dependent protein Z	https://www.uniprot.org/uniprot/P22891

PSG1 ; PSG1_HUMAN ; P11464	Pregnancy-specific beta-1-glycoprotein 1	https://www.uniprot.org/uniprot/P11464
PTGDR2 ; PD2R2_HUMAN ; Q9Y5Y4	Prostaglandin D2 receptor 2	https://www.uniprot.org/uniprot/Q9Y5Y4
PTGFRN ; FPRP_HUMAN ; Q9P2B2	Prostaglandin F2 receptor negative regulator	https://www.uniprot.org/uniprot/Q9P2B2
PTPRC ; PTPRC_HUMAN ; P08575	Receptor-type tyrosine-protein phosphatase C	https://www.uniprot.org/uniprot/P08575
PTPRJ ; PTPRJ_HUMAN ; Q12913	Receptor-type tyrosine-protein phosphatase eta	https://www.uniprot.org/uniprot/Q12913
PVR ; PVR_HUMAN ; P15151	Poliovirus receptor	https://www.uniprot.org/uniprot/P15151
PZP ; PZP_HUMAN ; P20742	Pregnancy zone protein	https://www.uniprot.org/uniprot/P20742
RBP4 ; RET4_HUMAN ; P02753	Retinol-binding protein 4	https://www.uniprot.org/uniprot/P02753
RETN ; RETN_HUMAN ; Q9HD89	Resistin	https://www.uniprot.org/uniprot/Q9HD89
RHAG ; RHAG_HUMAN ; Q02094	Ammonium transporter Rh type A	https://www.uniprot.org/uniprot/Q02094
RHCE ; RHCE_HUMAN ; P18577	Blood group Rh(CE) polypeptide	https://www.uniprot.org/uniprot/P18577
RHD ; RHD_HUMAN ; Q02161	Blood group Rh(D) polypeptide	https://www.uniprot.org/uniprot/Q02161
RNF180 ; RN180_HUMAN ; Q86T96	E3 ubiquitin-protein ligase RNF180	https://www.uniprot.org/uniprot/Q86T96
ROCK2 ; ROCK2_HUMAN ; O75116	Rho-associated protein kinase 2	https://www.uniprot.org/uniprot/O75116

RPAP3 ; RPAP3_HUMAN ; Q9H6T3	RNA polymerase II-associated protein 3	https://www.uniprot.org/uniprot/Q9H6T3
RYR2 ; RYR2_HUMAN ; Q92736	Ryanodine receptor 2	https://www.uniprot.org/uniprot/Q92736
SAA1 ; SAA1_HUMAN ; P0DJI8	Serum amyloid A-1 protein	https://www.uniprot.org/uniprot/P0DJI8
SAA2 ; SAA2_HUMAN ; P0DJI9	Serum amyloid A-2 proteincur	https://www.uniprot.org/uniprot/P0DJI9
SDC1 ; SDC1_HUMAN ; P18827	Syndecan-1	https://www.uniprot.org/uniprot/P18827
SECISBP2L ; SBP2L_HUMAN ; Q93073	Selenocysteine insertion sequence-binding protein 2-like	https://www.uniprot.org/uniprot/Q93073
SELE ; LYAM2_HUMAN ; P16581	E-selectin	https://www.uniprot.org/uniprot/P16581
SELENOP ; SEPP1_HUMAN ; P49908	Selenoprotein P	https://www.uniprot.org/uniprot/P49908
SELL ; LYAM1_HUMAN ; P14151	L-selectin	https://www.uniprot.org/uniprot/P14151
SELP ; LYAM3_HUMAN ; P16109	P-selectin	https://www.uniprot.org/uniprot/P16109
SELPLG ; SELPL_HUMAN ; Q14242	P-selectin glycoprotein ligand 1	https://www.uniprot.org/uniprot/Q14242
SEMA4D ; SEM4D_HUMAN ; Q92854	Semaphorin-4D	https://www.uniprot.org/uniprot/Q92854
SEMA7A ; SEM7A_HUMAN ; O75326	Semaphorin-7A	https://www.uniprot.org/uniprot/O75326
SERPINA1 ; A1AT_HUMAN ; P01009	Alpha-1-antitrypsin	https://www.uniprot.org/uniprot/P01009

SERPINA3 ; AACT_HUMAN ; P01011	Alpha-1-antichymotrypsin	https://www.uniprot.org/uniprot/P01011
SERPINA6 ; CBG_HUMAN ; P08185	Corticosteroid-binding globulin	https://www.uniprot.org/uniprot/P08185
SERPINA7 ; THBG_HUMAN ; P05543	Thyroxine-binding globulin	https://www.uniprot.org/uniprot/P05543
SERPINC1 ; ANT3_HUMAN ; P01008	Antithrombin-III	https://www.uniprot.org/uniprot/P01008
SERPIND1 ; HEP2_HUMAN ; P05546	Heparin cofactor 2	https://www.uniprot.org/uniprot/P05546
SERPINF1 ; PEDF_HUMAN ; P36955	Pigment epithelium-derived factor	https://www.uniprot.org/uniprot/P36955
SERPINF2 ; A2AP_HUMAN ; P08697	Alpha-2-antiplasmin	https://www.uniprot.org/uniprot/P08697
SERPING1 ; IC1_HUMAN ; P05155	Plasma protease C1 inhibitor	https://www.uniprot.org/uniprot/P05155
SETSIP ; SETLP_HUMAN ; P0DME0	Protein SETSIP	https://www.uniprot.org/uniprot/P0DME0
SFI1 ; SFI1_HUMAN ; A8K8P3	Protein SFI1 homolog	https://www.uniprot.org/uniprot/A8K8P3
SIGLEC1 ; SN_HUMAN ; Q9BZZ2	Sialoadhesin	https://www.uniprot.org/uniprot/Q9BZZ2
SIGLEC5 ; SIGL5_HUMAN ; O15389	Sialic acid-binding Ig-like lectin 5	https://www.uniprot.org/uniprot/O15389
SIGLEC6 ; SIGL6_HUMAN ; O43699	Sialic acid-binding Ig-like lectin 6	https://www.uniprot.org/uniprot/O43699
SIGLEC7 ; SIGL7_HUMAN ; Q9Y286	Sialic acid-binding Ig-like lectin 7	https://www.uniprot.org/uniprot/Q9Y286

SIGLEC9 ; SIGL9_HUMAN ; Q9Y336	Sialic acid-binding Ig-like lectin 9	https://www.uniprot.org/uniprot/Q9Y336
SIRPA ; SHPS1_HUMAN ; P78324	Tyrosine-protein phosphatase non-receptor type substrate 1	https://www.uniprot.org/uniprot/P78324
SIRPB1 ; SIRB1_HUMAN ; O00241	Signal-regulatory protein beta-1	https://www.uniprot.org/uniprot/O00241
SIRPG ; SIRPG_HUMAN ; Q9P1W8	Signal-regulatory protein gamma	https://www.uniprot.org/uniprot/Q9P1W8
SLAMF1 ; SLAF1_HUMAN ; Q13291	Signaling lymphocytic activation molecule	https://www.uniprot.org/uniprot/Q13291
SLAMF7 ; SLAF7_HUMAN ; Q9NQ25	SLAM family member 7	https://www.uniprot.org/uniprot/Q9NQ25
SLC44A1 ; CTL1_HUMAN ; Q8WWI5	Choline transporter-like protein 1	https://www.uniprot.org/uniprot/Q8WWI5
SLC4A1 ; B3AT_HUMAN ; P02730	Band 3 anion transport protein	https://www.uniprot.org/uniprot/P02730
SLC7A5 ; LAT1_HUMAN ; Q01650	Large neutral amino acids transporter small subunit 1	https://www.uniprot.org/uniprot/Q01650
SMC3 ; SMC3_HUMAN ; Q9UQE7	Structural maintenance of chromosomes protein 3	https://www.uniprot.org/uniprot/Q9UQE7
SOD1 ; SODC_HUMAN ; P00441	Superoxide dismutase [Cu-Zn]	https://www.uniprot.org/uniprot/P00441
SPECC1L ; CYTSA_HUMAN ; Q69YQ0	Cytospin-A	https://www.uniprot.org/uniprot/Q69YQ0
SPN ; LEUK_HUMAN ; P16150	Leukosialin	https://www.uniprot.org/uniprot/P16150
SPP1 ; OSTP_HUMAN ; P10451	Osteopontin	https://www.uniprot.org/uniprot/P10451

STAT1 ; STAT1_HUMAN ; P42224	Signal transducer and activator of transcription 1-alpha/beta	https://www.uniprot.org/uniprot/P42224
STAT3 ; STAT3_HUMAN ; P40763	Signal transducer and activator of transcription 3	https://www.uniprot.org/uniprot/P40763
STAT5A ; STA5A_HUMAN ; P42229	Signal transducer and activator of transcription 5A	https://www.uniprot.org/uniprot/P42229
STIL ; STIL_HUMAN ; Q15468	SCL-interrupting locus protein	https://www.uniprot.org/uniprot/Q15468
SYNE1 ; SYNE1_HUMAN ; Q8NF91	Nesprin-1	https://www.uniprot.org/uniprot/Q8NF91
SYNE2 ; SYNE2_HUMAN ; Q8WXH0	Nesprin-2	https://www.uniprot.org/uniprot/Q8WXH0
SYNGAP1 ; SYGP1_HUMAN ; Q96PV0	Ras/Rap GTPase-activating protein SynGAP	https://www.uniprot.org/uniprot/Q96PV0
TCERG1 ; TCRG1_HUMAN ; O14776	Transcription elongation regulator 1	https://www.uniprot.org/uniprot/O14776
TCP10L3 ; TCP10_HUMAN ; Q12799	Putative T-complex protein 10A homolog	https://www.uniprot.org/uniprot/Q12799
TDGF1P3 ; TDGF3_HUMAN ; P51864	Putative teratocarcinoma-derived growth factor 3	https://www.uniprot.org/uniprot/P51864
TDRD1 ; TDRD1_HUMAN ; Q9BXT4	Tudor domain-containing protein 1	https://www.uniprot.org/uniprot/Q9BXT4
TDRD15 ; TDR15_HUMAN ; B5MCY1	Tudor domain-containing protein 15	https://www.uniprot.org/uniprot/B5MCY1
TEK ; TIE2_HUMAN ; Q02763	Angiopoietin-1 receptor	https://www.uniprot.org/uniprot/Q02763
TF ; TRFE_HUMAN ; P02787	Serotransferrin	https://www.uniprot.org/uniprot/P02787

TFRC ; TFR1_HUMAN ; P02786	Transferrin receptor protein 1	https://www.uniprot.org/uniprot/P02786
TGFB1 ; TGFB1_HUMAN ; P01137	Transforming growth factor beta-1 proprotein	https://www.uniprot.org/uniprot/P01137
TGFB2 ; TGFB2_HUMAN ; P61812	Transforming growth factor beta-2 proprotein	https://www.uniprot.org/uniprot/P61812
TGFB3 ; TGFB3_HUMAN ; P10600	Transforming growth factor beta-3 proprotein	https://www.uniprot.org/uniprot/P10600
TGFBI ; BGH3_HUMAN ; Q15582	Transforming growth factor-beta-induced protein ig-h3	https://www.uniprot.org/uniprot/Q15582
TGFBR1 ; TGFR1_HUMAN ; P36897	TGF-beta receptor type-1	https://www.uniprot.org/uniprot/P36897
TGFBR2 ; TGFR2_HUMAN ; P37173	TGF-beta receptor type-2	https://www.uniprot.org/uniprot/P37173
TGFBR3 ; TGBR3_HUMAN ; Q03167	Transforming growth factor beta receptor type 3	https://www.uniprot.org/uniprot/Q03167
THBD ; TRBM_HUMAN ; P07204	Thrombomodulin	https://www.uniprot.org/uniprot/P07204
THBS1 ; TSP1_HUMAN ; P07996	Thrombospondin-1	https://www.uniprot.org/uniprot/P07996
THBS4 ; TSP4_HUMAN ; P35443	Thrombospondin-4	https://www.uniprot.org/uniprot/P35443
THPO ; TPO_HUMAN ; P40225	Thrombopoietin	https://www.uniprot.org/uniprot/P40225
THY1 ; THY1_HUMAN ; P04216	Thy-1 membrane glycoprotein	https://www.uniprot.org/uniprot/P04216
TIAM2 ; TIAM2_HUMAN ; Q8IVF5	T-lymphoma invasion and metastasis-inducing protein 2	https://www.uniprot.org/uniprot/Q8IVF5

TLR1 ; TLR1_HUMAN ; Q15399	Toll-like receptor 1	https://www.uniprot.org/uniprot/Q15399
TLR10 ; TLR10_HUMAN ; Q9BXR5	Toll-like receptor 10	https://www.uniprot.org/uniprot/Q9BXR5
TLR2 ; TLR2_HUMAN ; O60603	Toll-like receptor 2	https://www.uniprot.org/uniprot/O60603
TLR3 ; TLR3_HUMAN ; O15455	Toll-like receptor 3	https://www.uniprot.org/uniprot/O15455
TLR4 ; TLR4_HUMAN ; O00206	Toll-like receptor 4	https://www.uniprot.org/uniprot/O00206
TLR5 ; TLR5_HUMAN ; O60602	Toll-like receptor 5	https://www.uniprot.org/uniprot/O60602
TLR6 ; TLR6_HUMAN ; Q9Y2C9	Toll-like receptor 6	https://www.uniprot.org/uniprot/Q9Y2C9
TLR7 ; TLR7_HUMAN ; Q9NYK1	Toll-like receptor 7	https://www.uniprot.org/uniprot/Q9NYK1
TLR8 ; TLR8_HUMAN ; Q9NR97	Toll-like receptor 8	https://www.uniprot.org/uniprot/Q9NR97
TLR9 ; TLR9_HUMAN ; Q9NR96	Toll-like receptor 9	https://www.uniprot.org/uniprot/Q9NR96
TMEM198 ; TM198_HUMAN ; Q66K66	Transmembrane protein 198	https://www.uniprot.org/uniprot/Q66K66
TNF ; TNFA_HUMAN ; P01375	Tumor necrosis factor	https://www.uniprot.org/uniprot/P01375
TNFRSF10A ; TR10A_HUMAN ; O00220	Tumor necrosis factor receptor superfamily member 10A	https://www.uniprot.org/uniprot/O00220
TNFRSF10B ; TR10B_HUMAN ; O14763	Tumor necrosis factor receptor superfamily member 10B	https://www.uniprot.org/uniprot/O14763

TNFRSF10C ; TR10C_HUMAN ; O14798	Tumor necrosis factor receptor superfamily member 10C	https://www.uniprot.org/uniprot/O14798
TNFRSF10D ; TR10D_HUMAN ; Q9UBN6	Tumor necrosis factor receptor superfamily member 10D	https://www.uniprot.org/uniprot/Q9UBN6
TNFRSF11A ; TNR11_HUMAN ; Q9Y6Q6	Tumor necrosis factor receptor superfamily member 11A	https://www.uniprot.org/uniprot/Q9Y6Q6
TNFRSF11B ; TR11B_HUMAN ; O00300	Tumor necrosis factor receptor superfamily member 11B	https://www.uniprot.org/uniprot/O00300
TNFRSF12A ; TNR12_HUMAN ; Q9NP84	Tumor necrosis factor receptor superfamily member 12A	https://www.uniprot.org/uniprot/Q9NP84
TNFRSF13B ; TR13B_HUMAN ; O14836	Tumor necrosis factor receptor superfamily member 13B	https://www.uniprot.org/uniprot/O14836
TNFRSF13C ; TR13C_HUMAN ; Q96RJ3	Tumor necrosis factor receptor superfamily member 13C	https://www.uniprot.org/uniprot/Q96RJ3
TNFRSF14 ; TNR14_HUMAN ; Q92956	Tumor necrosis factor receptor superfamily member 14	https://www.uniprot.org/uniprot/Q92956
TNFRSF17 ; TNR17_HUMAN ; Q02223	Tumor necrosis factor receptor superfamily member 17	https://www.uniprot.org/uniprot/Q02223
TNFRSF18 ; TNR18_HUMAN ; Q9Y5U5	Tumor necrosis factor receptor superfamily member 18	https://www.uniprot.org/uniprot/Q9Y5U5
TNFRSF1A ; TNR1A_HUMAN ; P19438	Tumor necrosis factor receptor superfamily member 1A	https://www.uniprot.org/uniprot/P19438
TNFRSF1B ; TNR1B_HUMAN ; P20333	Tumor necrosis factor receptor superfamily member 1B	https://www.uniprot.org/uniprot/P20333
TNFRSF25 ; TNR25_HUMAN ; Q93038	Tumor necrosis factor receptor superfamily member 25	https://www.uniprot.org/uniprot/Q93038
TNFRSF4 ; TNR4_HUMAN ; P43489	Tumor necrosis factor receptor superfamily member 4	https://www.uniprot.org/uniprot/P43489

TNFRSF8 ; TNR8_HUMAN ; P28908	Tumor necrosis factor receptor superfamily member 8	https://www.uniprot.org/uniprot/P28908
TNFRSF9 ; TNR9_HUMAN ; Q07011	Tumor necrosis factor receptor superfamily member 9	https://www.uniprot.org/uniprot/Q07011
TNFSF10 ; TNF10_HUMAN ; P50591	Tumor necrosis factor ligand superfamily member 10	https://www.uniprot.org/uniprot/P50591
TNFSF11 ; TNF11_HUMAN ; O14788	Tumor necrosis factor ligand superfamily member 11	https://www.uniprot.org/uniprot/O14788
TNFSF12 ; TNF12_HUMAN ; O43508	Tumor necrosis factor ligand superfamily member 12	https://www.uniprot.org/uniprot/O43508
TNFSF13 ; TNF13_HUMAN ; O75888	Tumor necrosis factor ligand superfamily member 13	https://www.uniprot.org/uniprot/O75888
TNFSF13B ; TN13B_HUMAN ; Q9Y275	Tumor necrosis factor ligand superfamily member 13B	https://www.uniprot.org/uniprot/Q9Y275
TNFSF14 ; TNF14_HUMAN ; O43557	Tumor necrosis factor ligand superfamily member 14	https://www.uniprot.org/uniprot/O43557
TNFSF15 ; TNF15_HUMAN ; O95150	Tumor necrosis factor ligand superfamily member 15	https://www.uniprot.org/uniprot/O95150
TNFSF18 ; TNF18_HUMAN ; Q9UNG2	Tumor necrosis factor ligand superfamily member 18	https://www.uniprot.org/uniprot/Q9UNG2
TNFSF4 ; TNFL4_HUMAN ; P23510	Tumor necrosis factor ligand superfamily member 4	https://www.uniprot.org/uniprot/P23510
TNFSF8 ; TNFL8_HUMAN ; P32971	Tumor necrosis factor ligand superfamily member 8	https://www.uniprot.org/uniprot/P32971
TNFSF9 ; TNFL9_HUMAN ; P41273	Tumor necrosis factor ligand superfamily member 9	https://www.uniprot.org/uniprot/P41273
TNNT3 ; TNNT3_HUMAN ; P45378	Troponin T, fast skeletal muscle	https://www.uniprot.org/uniprot/P45378

TNS1 ; TENS1_HUMAN ; Q9HBL0	Tensin-1	https://www.uniprot.org/uniprot/Q9HBL0
TOP3B ; TOP3B_HUMAN ; O95985	DNA topoisomerase 3-beta-1	https://www.uniprot.org/uniprot/O95985
TRAF3IP3 ; T3JAM_HUMAN ; Q9Y228	TRAF3-interacting JNK-activating modulator	https://www.uniprot.org/uniprot/Q9Y228
TRIM33 ; TRI33_HUMAN ; Q9UPN9	E3 ubiquitin-protein ligase TRIM33	https://www.uniprot.org/uniprot/Q9UPN9
TRPC4AP ; TP4AP_HUMAN ; Q8TEL6	Short transient receptor potential channel 4-associated protein	https://www.uniprot.org/uniprot/Q8TEL6
TSPAN7 ; TSN7_HUMAN ; P41732	Tetraspanin-7	https://www.uniprot.org/uniprot/P41732
TTN ; TITIN_HUMAN ; Q8WZ42	Titin	https://www.uniprot.org/uniprot/Q8WZ42
TTR ; TTHY_HUMAN ; P02766	Transthyretin	https://www.uniprot.org/uniprot/P02766
TUSC2 ; TUSC2_HUMAN ; O75896	Tumor suppressor candidate 2	https://www.uniprot.org/uniprot/O75896
TXLNB ; TXLNB_HUMAN ; Q8N3L3	Beta-taxilin	https://www.uniprot.org/uniprot/Q8N3L3
UBQLN1 ; UBQL1_HUMAN ; Q9UMX0	Ubiquilin-1	https://www.uniprot.org/uniprot/Q9UMX0
VEGFD ; VEGFD_HUMAN ; O43915	Vascular endothelial growth factor D	https://www.uniprot.org/uniprot/O43915
VPREB1 ; VPREB_HUMAN ; P12018	Immunoglobulin iota chain	https://www.uniprot.org/uniprot/P12018
VTN ; VTNC_HUMAN ; P04004	Vitronectin	https://www.uniprot.org/uniprot/P04004

VWA8 ; VWA8_HUMAN ; A3KMH1	von Willebrand factor A domain-containing protein 8	https://www.uniprot.org/uniprot/A3KMH1
VWF ; VWF_HUMAN ; P04275	von Willebrand factor	https://www.uniprot.org/uniprot/P04275
WAPL ; WAPL_HUMAN ; Q7Z5K2	Wings apart-like protein homolog	https://www.uniprot.org/uniprot/Q7Z5K2
XCL1 ; XCL1_HUMAN ; P47992	Lymphotactin	https://www.uniprot.org/uniprot/P47992
XCL2 ; XCL2_HUMAN ; Q9UBD3	Cytokine SCM-1 beta	https://www.uniprot.org/uniprot/Q9UBD3
XCR1 ; XCR1_HUMAN ; P46094	Chemokine XC receptor 1	https://www.uniprot.org/uniprot/P46094
XRCC6 ; XRCC6_HUMAN ; P12956	X-ray repair cross-complementing protein 6	https://www.uniprot.org/uniprot/P12956

35. **lk_protocol_type**

Name	Description	Link
Assay	Protocol used to assay or measure an experiment sample	
Bio Sample Preparation	Biological Sample Preparation.	
Bio Sample Treatment	Protocol used to prepare Biological Sample.	
Biomaterial Transformation	Protocol used to prepare or modify a biological sample	
Case Report Form	Case Report Form	http://purl.obolibrary.org/obo/NCIT_C40988
Clinical	Clinical	
Clinical Study Protocol	Clinical Study Protocol	http://purl.obolibrary.org/obo/NCIT_C25320
Clinical Trial Monitoring Plan	A proposed method to ensure the adequate monitoring of subjects during a clinical trial.	http://purl.obolibrary.org/obo/NCIT_C115753

Clinical Trials Operational Procedure Manual	Documentation describing clinical trial-related work processes.	http://purl.obolibrary.org/obo/NCIT_C115764
Data Processing	Data Processing	
Data Transformation	Protocol used to analyze or reformat data	
Experiment	Protocol used in the Experiment.	
Experimental Sample	Protocol used for Experimental Sample.	
Institutional Review Board Independent Ethics Committee Informed Consent Document	Records approved by the Institutional Review Board (IRB)/Independent Ethics Committee (IEC), explaining study information to assist study volunteers in understanding the expectations and requirements of trial participation.	http://purl.obolibrary.org/obo/NCIT_C115697
Laboratory Sample Manual	Documentation describing work processes and procedures for the collection, handling, and shipping of a sample.	http://purl.obolibrary.org/obo/NCIT_C115541
Materials and Methods section	The materials and methods section is a document section containing a description of the materials and methods used in the study.	http://semanticscience.org/resource/SIO_000197
Not Specified	Protcol Type is not specified or not received. If no Protocol Type value is received, then this is the system default value.	
Other	Other	
Process Protocol	A standard operating procedure (SOP) that is a collection of activities and the rules that describe when each activity is performed to achieve a specific purpose or objective(s). [Definition Source: NCI]	http://purl.obolibrary.org/obo/NCIT_C164368
Specimen Collection Protocol	The rule which guides how a specimen collection should be performed	http://purl.obolibrary.org/obo/NCIT_C164426
Statistical Analysis Documentation	Statistical Analysis Documentation	http://purl.obolibrary.org/obo/NCIT_C115732
Study Protocol	'Study_Protocol' Study design description.	
Study Summary	'Study_Summary' Study review after a study is closed.	
Subject Organism Treatment	Subject Organism Treatment	

36. **lk_public_repository**

Name	Description	Link
ArrayExpress	ArrayExpress Archive of Functional Genomics Data stores data from high-throughput functional genomics experiments, and provides these data for reuse to the research community.	https://www.ebi.ac.uk/arrayexpress/
Broad Single Cell Portal	The Single Cell Portal was developed to facilitate sharing scientific results, and disseminating data generated from single cell technologies.	https://singlecell.broadinstitute.org/single_cell
dbGAP	The database of Genotypes and Phenotypes (dbGaP) was developed to archive and distribute the results of studies that have investigated the interaction of genotype and phenotype.	http://www.ncbi.nlm.nih.gov/gap
ENA	The European Nucleotide Archive (ENA) provides a comprehensive record of the world's nucleotide sequencing information, covering raw sequencing data, sequence assembly information and functional annotation.	http://www.ebi.ac.uk/ena
Ensembl	Ensembl gene repository	
FlowRepository	A database of flow cytometry experiments where you can query and download data collected and annotated according to the MIFlowCyt standard.	http://flowrepository.org
GenBank	GenBank is the NIH genetic sequence database, an annotated collection of all publicly available DNA sequences.	https://www.ncbi.nlm.nih.gov/genbank/
GEO	GEO is a public functional genomics data repository supporting MIAME-compliant data submissions. Array- and sequence-based data are accepted. Tools are provided to help users query and download experiments and curated gene expression profiles.	http://www.ncbi.nlm.nih.gov/geo/

GISAID	The GISAID Initiative promotes the rapid sharing of data from all influenza viruses and the coronavirus causing COVID-19. This includes genetic sequence and related clinical and epidemiological data associated with human viruses, and geographical as well as species-specific data associated with avian and other animal viruses, to help researchers understand how viruses evolve and spread during epidemics and pandemics.	https://www.gisaid.org/
IEDB	The Immune Epitope Database (IEDB) is a freely available resource funded by NIAID. It catalogs experimental data on antibody and T cell epitopes studied in humans, non-human primates, and other animal species in the context of infectious disease, allergy, autoimmunity and transplantation. The IEDB also hosts tools to assist in the prediction and analysis of epitopes.	https://www.iedb.org/
ImmPort	Immunology Database and Analysis Portal (ImmPort).	http://www.immport.org/immport-open/public/home/home
MassIVE	MassIVE is a community resource developed by the NIH-funded Center for Computational Mass Spectrometry to promote the global, free exchange of mass spectrometry data. MassIVE datasets can be assigned ProteomeXchange accessions to satisfy publication requirements.	https://massive.ucsd.edu/ProteoSAFe/static/massive.jsp
MetaboLights	A database for Metabolomics experiments and derived information. The database is cross-species, cross-technique and covers metabolite structures and their reference spectra as well as their biological roles, locations and concentrations, and experimental data from metabolic experiments.	https://www.ebi.ac.uk/metabolights/
Metabolomics Workbench	A National Metabolomics Data Repository (NMDR) which is a public repository for metabolomics metadata and experimental data	https://www.metabolomicsworkbench.org

MGnify	MGnify offers an automated pipeline for the analysis and archiving of microbiome data to help determine the taxonomic diversity and functional & metabolic potential of environmental samples. Users can submit their own data for analysis or freely browse all of the analysed public datasets held within the repository.	https://www.ebi.ac.uk/metagenomics/
NCBI Gene	NCBI gene repository	
PRIDE	The PRIDE PRoteomics IDEntifications (PRIDE) database is a centralized, standards compliant, public data repository for proteomics data, including protein and peptide identifications, post-translational modifications and supporting spectral evidence. PRIDE is a core member in the ProteomeXchange (PX) consortium, which provides a single point for submitting mass spectrometry based proteomics data to public-domain repositories. Datasets are submitted to PRIDE via ProteomeXchange and are handled by expert biocurators.	https://www.ebi.ac.uk/pride/archive/
SRA	The Sequence Read Archive (SRA) stores raw sequencing data from the next generation of sequencing platforms including Roche 454 GS System, Illumina Genome Analyzer, Applied Biosystems SOLiD System, Helicos Heliscope, Complete Genomics, and Pacific Biosciences SMRT.	http://www.ncbi.nlm.nih.gov/sra
UniProt	The mission of UniProt is to provide the scientific community with a comprehensive, high-quality and freely accessible resource of protein sequence and functional information.	https://www.uniprot.org/

37. **lk_race**

Name	Description	Link
American Indian or Alaska Native	A person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment.	https://www.fda.gov/downloads/regulatoryinformation/guidances/ucm126396.pdf

Asian	A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent, including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.	https://www.fda.gov/downloads/regulatoryinformation/guidances/ucm126396.pdf
Black or African American	A person having origins in any of the black racial groups of Africa. Terms such as "Haitian" or "Negro" can be used in addition to "Black or African American."	https://www.fda.gov/downloads/regulatoryinformation/guidances/ucm126396.pdf
Multiracial	Having ancestors of several or various races.	https://ncit.nci.nih.gov/ncitbrowser/pages/concept_details.jsf?dictionary=NCI_Thesaurus&version=22.04d&code=C67109
Native Hawaiian or Other Pacific Islander	A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.	https://www.fda.gov/downloads/regulatoryinformation/guidances/ucm126396.pdf
Not Specified	Race is not specified or not received. If no Race value is received, then this is the system default value.	https://www.fda.gov/downloads/regulatoryinformation/guidances/ucm126396.pdf
Other	A person having a Race that is some Other value not in CV Terms.	https://www.fda.gov/downloads/regulatoryinformation/guidances/ucm126396.pdf
Unknown	A person having a race that is Unknown.	https://www.fda.gov/downloads/regulatoryinformation/guidances/ucm126396.pdf
White	A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.	https://www.fda.gov/downloads/regulatoryinformation/guidances/ucm126396.pdf

38. **lk_reagent_type**

Name	Description	Link
Array	Arrays (including microarrays) are a set of probes immobilized on a surface. The probes can be oligonucleotides, cDNAs, antibodies and other molecules that recognize a target. Microarrays can be constructed by several methods including (but not limited to in situ oligo synthesis (e.g. Affymetrix), cDNA spotting, bead arrays (e.g. Illumina) and antibody spotting. The position and identity of probes are provided by the manufacturer. The probe identifiers and their target are referred to as annotation or translation of probe identifiers to bioinformatic identifiers. Microarrays can be used for gene expression (mRNA transcript quantification), genotyping, cytokine quantification, etc. Microarrays for gene expression fall into two general classes- single channel and dual channel. The channel refers to the wavelength scanned for fluorescent signals. Affymetrix microarrays are obligatory single channel. Many commercial and non-commercial microarray manufacturers use two channel.	http://purl.obolibrary.org/obo/OBI_0400147; http://purl.obolibrary.org/obo/OBI_0001204; http://purl.obolibrary.org/obo/OBI_0001307; http://purl.obolibrary.org/obo/OBI_0400149
CyTOF	Cytometry Time Of Flight CyTOF (DVS Sciences) or Mass cytometry, or , is a variation of flow cytometry in which antibodies are labeled with heavy metal ion tags rather than fluorochromes. Readout is by time-of-flight mass spectrometry.	http://en.wikipedia.org/wiki/Mass_cytometry
Cytometric Bead Array	An assay in which a series of beads coated with antibodies specific for different analytes and marked with discrete fluorescent labels are used to simultaneously capture and quantitate soluble analytes using flow cytometric analysis.	http://purl.obolibrary.org/obo/OBI_0000920
ELISA	Enzyme-Linked ImmunoSorbant Assay. Quantification of a molecule (e.g cytokine) by an antibody immobilization strategy.	http://purl.obolibrary.org/obo/OBI_0000661

ELISPOT	Enzyme-linked ImmunoSPOT. A variant of ELISA with increased resolution that allows quantifying the number of cells in a population that release a molecule (e.g. cytokine).	http://purl.obolibrary.org/obo/OBI_0600031
Flow Cytometry	Fluorescence Activated Cell Sorting.	http://purl.obolibrary.org/obo/OBI_0000916
Hemagglutination Inhibition	Quantitate serum antibody to a specific antigen by blocking agglutination of cells.	http://purl.obolibrary.org/obo/OBI_0000875
HLA Typing	Human Leukocyte Antigen typing.	http://purl.obolibrary.org/obo/OBI_0000435
KIR Typing	Killer cell immunoglobulin-like receptors.	http://purl.obolibrary.org/obo/OBI_0000435
Luminex xMAP	Microsphere based multiplexing system. Microspheres are color coded and linked to a detector or capture reagent (e.g. antibody, oligonucleotides, peptides, or receptors).	http://purl.obolibrary.org/obo/OBI_0000920
Neutralizing Antibody Titer	Measurement of how much antibody an organism has produced that recognizes a particular epitope, expressed as the inverse of the greatest dilution that still gives a positive result.	http://purl.obolibrary.org/obo/VO_0000397
Other	Other reagent.	http://immport.org/immport-open/public/home/documentation
PCR	Polymerase Chain Reaction is a technique to amplify a DNA template.	http://purl.obolibrary.org/obo/OBI_0000415
Sequencing	Sequencing is used to discover new sequence variants and to genotype a sample for known variants.	http://purl.obolibrary.org/obo/OBI_0600047
Virus Neutralization	Block a viral function.	http://purl.obolibrary.org/obo/OBI_0000872

39. **lk_release_status**

Name	Description
Initial	The Initial Data Release for the study
Unknown	The Data Release for the study is not known
Updated	The Data Release for the study is an update

40. **lk_research_focus**

Name	Description	Link
Atopy/Allergy	Atopy or Allergy research focus.	http://purl.obolibrary.org/obo/OBI_1110049
Autoimmune	Autoimmune research focus.	http://purl.obolibrary.org/obo/OBI_1110054
Cardiovascular system disease	A disease of anatomical entity which occurs in the blood, heart, blood vessels or the lymphatic system that passes nutrients (such as amino acids and electrolytes), gases, hormones, blood cells or lymph to and from cells in the body to help fight diseases and help stabilize body temperature and pH to maintain homeostasis. [database_cross_reference: url:http://en.wikipedia.org/wiki/Circulatory_system][database_cross_reference: url:http://en.wikipedia.org/wiki/Circulatory_system][type: http://purl.obolibrary.org/obo/ECO_0007638][type: http://purl.obolibrary.org/obo/ECO_0007638]	http://purl.obolibrary.org/obo/DOID_1287
Cell Biology	The study of the internal workings of cells at the microscopic and molecular level.	http://purl.obolibrary.org/obo/NCIT_C17992
Computational Modelling	The development of mathematical or computational models to mimic or study a biological phenomenon.(NCI)	https://uts.nlm.nih.gov/uts/umls/concept/C5544479
Development	Processes that involve and promote formation of more mature organs, organ systems, or organisms; general development.	http://purl.obolibrary.org/obo/NCIT_C18732

Epidemiology	Field concerned with the determination of causes, incidence, and characteristic behavior of disease outbreaks affecting human populations. It includes the interrelationships of host, agent, and environment as related to the distribution and control of disease. (MSH)	https://uts.nlm.nih.gov/uts/umls/concept/C0014507
Exposome	The measure of all the exposures of an individual from all sources, including environmental and occupational sources, in a lifetime and how those exposures relate to health. (from https://www.cdc.gov/niosh/topics/exposome/ on 06/06/2019) (MSH)	https://uts.nlm.nih.gov/uts/umls/concept/C5197919
Immune Response	Immune Response research focus.	http://purl.obolibrary.org/obo/GO_0006955
Infection Response	Infection Response research focus.	http://purl.obolibrary.org/obo/NCIT_C26726
Method Development	An approach to develop novel, or enhance existing, scientific tools and methods for use in research. (NCI)	https://uts.nlm.nih.gov/uts/umls/concept/C0178742
Molecular Biology	The study of biology at a molecular level. It chiefly concerns itself with understanding the interactions between the various systems of a cell, including the interrelationship of DNA, RNA and protein synthesis and learning how these interactions are regulated. The field overlaps with other areas of biology, particularly genetics and biochemistry.	http://purl.obolibrary.org/obo/NCIT_C16872
No Research Focus Specified	No Research Focus currently specified.	
Oncology	The study of tumors encompassing the physical, chemical, and biologic properties.	http://purl.obolibrary.org/obo/NCIT_C17837
Other	Different than the one(s) previously specified or mentioned. (NCI)	https://uts.nlm.nih.gov/uts/umls/concept/C0205394

Pregnancy	The state or condition of having a developing embryo or fetus in the body (uterus), after union of an ovum and spermatozoon, during the period from conception to birth.	http://purl.obolibrary.org/obo/NCIT_C25742
Preterm Birth	Birth when a fetus is less than 37 weeks and 0 days gestational age.	http://purl.obolibrary.org/obo/NCIT_C92861
Psychopathology	The branch of pathology focusing on mental illness and abnormal behavior.	http://purl.obolibrary.org/obo/NCIT_C17035
Radiation Biology	The study of the mechanisms and biological effects of ionizing radiation, including repair processes.	http://purl.obolibrary.org/obo/NCIT_C17055
Transplantation	Transplantation research focus.	http://purl.obolibrary.org/obo/OBI_0000105
Vaccine Development	The entire process of introducing a new vaccine for use in VACCINATION including pre-clinical development, testing in CONTROLLED CLINICAL TRIAL, manufacturing, approval/licensing and distribution. (MSH)	https://uts.nlm.nih.gov/uts/umls/concept/C0597634
Vaccine Response	Vaccine Response research focus.	http://www.ebi.ac.uk/efo/EFO_0004645

41. **lk_rna_sequence_result_unit_type**

Name	Description	Link
result_unit_preferred		
FPKM	Fragments Per Kilobase Million: Normalized expression value of a given gene as measured by paired-end RNA sequencing	http://www.ncbi.nlm.nih.gov/pubmed/22872506
Gy	A SI derived unit of absorbed radiation dose. One gray is equal to an absorbed dose of one joule per kilogram of matter, or to 100 rads.	https://uts.nlm.nih.gov/uts/umls/concept/C0556636
Not Specified	No value provided. Not stated explicitly or in detail.	http://purl.obolibrary.org/obo/NCIT_C38046
RPKM	Reads Per Kilobase Million: Normalized expression value of a given gene as measured by single-end RNA sequencing	http://www.ncbi.nlm.nih.gov/pubmed/22872506

TPM	Transcripts per million reads- Measurement of mRNA abundance using RNA-seq data	http://www.ncbi.nlm.nih.gov/pubmed/22872506

42. **lk_sample_type**

Name	Description	Link
Amniotic Fluid	Amniotic fluid is a bodily fluid consisting of watery liquid surrounding and cushioning a growing fetus within the amnion. It allows the fetus to move freely without the walls of the uterus being too tight against its body. Buoyancy is also provided. The composition of the fluid changes over the course of gestation. Initially, amniotic fluid is similar to maternal plasma, mainly water with electrolytes. As the fetus develops, proteins, carbohydrates, lipids, phospholipids originating from the lungs, fetal cells, and urea are deposited in the fluid. database_cross_reference: MP:MPdatabase_cross_reference : ENVO:02000021	http://purl.obolibrary.org/obo/UBERON_0000173
Appendix	Small tissue projection existing as a cecal diverticulum with a questionable history of vestigial versus specialized organ.	http://purl.obolibrary.org/obo/NCIT_C12380
B cell	CD3-, CD19+, CD20+	http://purl.obolibrary.org/obo/CL_0000236
Basophils	Granular leukocytes characterized by a relatively pale-staining, lobate nucleus and cytoplasm containing coarse dark-staining granules of variable size and stainable by basic dyes. A type of immune cell that has granules (small particles) with enzymes that are released during allergic reactions and asthma. A basophil is a type of white blood cell and a type of granulocyte. (UMLS CUI: C0004827)	http://purl.obolibrary.org/obo/NCIT_C12531
Bone	Skeletal element that is composed of bone tissue.	http://purl.obolibrary.org/obo/UBERON_0001474
Bone Marrow	The soft tissue that fills the cavities of bones.	http://purl.obolibrary.org/obo/UBERON_0002371

Brachial lymph node	The lymph nodes located along the brachial vein that receive drainage from most of the free upper limb and send efferent vessels to the central axillary lymph nodes.	http://purl.obolibrary.org/obo/UBERON_0002525
brain	The brain is the center of the nervous system in all vertebrate, and most invertebrate, animals. Some primitive animals such as jellyfish and starfish have a decentralized nervous system without a brain, while sponges lack any nervous system at all. In vertebrates, the brain is located in the head, protected by the skull and close to the primary sensory apparatus of vision, hearing, balance, taste, and smell[WP]. [database_cross_reference: http://en.wikipedia.org/wiki/Brain][database_cross_reference: https://github.com/obophenotype/uberon/issues/300]	http://purl.obolibrary.org/obo/UBERON_0000955
Breast Milk	Milk produced by female mammals for the purpose of feeding their young. The off-white liquid secreted by the mammary glands of humans and other mammals. It contains proteins, sugar, lipids, vitamins, and minerals. (UMLS CUI: C0026131)	http://purl.obolibrary.org/obo/NCIT_C13257
Bronchoalveolar Lavage Fluid	Bronchoalveolar lavage (BAL; informally, "bronchoalveolar washing") is a medical procedure in which a bronchoscope is passed through the mouth or nose into the lungs and fluid is squirted into a small part of the lung and then collected for examination.	https://en.wikipedia.org/wiki/Bronchoalveolar_lavage

Carbohydrate	Any member of the class of organooxygen compounds that is a polyhydroxy-aldehyde or -ketone or a lactol resulting from their intramolecular condensation (monosaccharides); substances derived from these by reduction of the carbonyl group (alditols), by oxidation of one or more hydroxy groups to afford the corresponding aldehydes, ketones, or carboxylic acids, or by replacement of one or more hydroxy group(s) by a hydrogen atom; and polymeric products arising by intermolecular acetal formation between two or more such molecules (disaccharides, polysaccharides and oligosaccharides). Carbohydrates contain only carbon, hydrogen and oxygen atoms; prior to any oxidation or reduction, most have the empirical formula Cm(H2O)n. Compounds obtained from carbohydrates by substitution, etc., are known as carbohydrate derivatives and may contain other elements. Cyclitols are generally not regarded as carbohydrates.	http://purl.obolibrary.org/obo/CHEBI_16646
Cell culture supernatant	Supernatant of a cell culture is a material entity which contains media, supplements, and secreted products of the cells and becomes the environment of cultivated cell.	http://purl.obolibrary.org/obo/OBI_1000023
cell line	A cultured cell population that represents a genetically stable and homogenous population of cultured cells that shares a common propagation history (i.e. has been successively passaged together in culture).	http://purl.obolibrary.org/obo/CLO_0000031
Cerebrospinal Fluid	A watery fluid that is continuously produced in the CHOROID PLEXUS and circulates around the surface of the BRAIN; SPINAL CORD; and in the CEREBRAL VENTRICLES. The fluid that flows in and around the hollow spaces of the brain and spinal cord, and between two of the meninges (the thin layers of tissue that cover and protect the brain and spinal cord). CSF is made by tissue called the choroid plexus in the ventricles (hollow spaces) in the brain. (UMLS CUI: C0007806)	http://purl.obolibrary.org/obo/NCIT_C12692

Cervical lymph nodes	Lymph nodes found in the neck.	https://en.wikipedia.org/wiki/Cervical_lymph_nodes
Colon	Last portion of the large intestine before it becomes the rectum.	http://purl.obolibrary.org/obo/UBERON_0001155
Colonic Lamina Propria	A lamina propria that is part of a colonic mucosa.	http://purl.obolibrary.org/obo/UBERON_0007177
Convalescent Plasma	Plasma derived from patients who have recovered from an illness. (UMLS CUI: C5383282)	http://purl.obolibrary.org/obo/NCIT_C173750
Cord blood	Blood that remains in the placenta and in the attached umbilical cord after childbirthWP. database_cross_reference: http://en.wikipedia.org/wiki/Cord_blood	http://purl.obolibrary.org/obo/UBERON_0012168
Decidua	The hormone-responsive glandular layer of ENDOMETRIUM that sloughs off at each menstrual flow (decidua menstrualis) or at the termination of pregnancy. During pregnancy, the thickest part of the decidua forms the maternal portion of the PLACENTA, thus named decidua placentalis. The thin portion of the decidua covering the rest of the embryo is the decidua capsularis. (MSH). The epithelial tissue of the endometrium. (NCI)	https://uts.nlm.nih.gov/uts/umls/concept/C0011106
Dendritic cell	CD3-, CD19, CD20, CD14-, CD16-, CD56-, HLA-DR+	http://purl.obolibrary.org/obo/CL_0000451
Dermis	The dermis is a layer of skin between the epidermis (with which it makes up the skin) and subcutaneous tissues, and is composed of two layers, the papillary and reticular dermis.	http://purl.obolibrary.org/obo/UBERON_0002067
DNA	High molecular weight, linear polymers, composed of nucleotides containing deoxyribose and linked by phosphodiester bonds; DNA contain the genetic information of organisms.	http://purl.obolibrary.org/obo/CHEBI_16991
Dried Blood Spot	Capillary blood collected on blotting paper, typically from heel or finger stick. (UMLS CUI: C3830395)	http://purl.obolibrary.org/obo/NCIT_C113746

Endotracheal aspirate	A specimen that derives from a biofilm that forms on the inner surface of an endotracheal tube while the tube is in the trachea. The specimen is collected by suction without removing the tube.	http://purl.bioontology.org/ontology/RCD/X7AAI
Epithelium	Portion of tissue, that consists of one or more layers of epithelial cells connected to each other by cell junctions and which is underlain by a basal lamina. Examples: simple squamous epithelium, glandular cuboidal epithelium, transitional epithelium, myoepithelium[CARO].	http://purl.obolibrary.org/obo/UBERON_0000483
Feces	The material discharged from the bowel during defecation. It consists of undigested food, intestinal mucus, epithelial cells, and bacteria.	http://purl.obolibrary.org/obo/NCIT_C13234
Fibroblast	A connective tissue cell which secretes an extracellular matrix rich in collagen and other macromolecules. Flattened and irregular in outline with branching processes; appear fusiform or spindle-shaped.	http://purl.obolibrary.org/obo/CL_0000057
Gastric lamina propria	The closest term in Uberson is "Mucosa of the stomach" : The mucosal layer that lines the stomach. It consists of epithelium, lamina propria, and the muscularis mucosae.	http://purl.obolibrary.org/obo/UBERON_0001199
Ileum	The portion of the small intestine that extends from the jejunum to the colon.	http://purl.obolibrary.org/obo/UBERON_0002116
Inguinal lymph node	The lymph nodes located in the groin area.	http://purl.obolibrary.org/obo/UBERON_0001542
Jejunum	The portion of the small intestine that extends from the duodenum to the ileum.	http://purl.obolibrary.org/obo/UBERON_0002115
Kidney	A paired organ of the urinary tract which has the production of urine as its primary function.	http://purl.obolibrary.org/obo/UBERON_0002113

Leukocytes	White blood cells. These include granular leukocytes (BASOPHILS; EOSINOPHILS; and NEUTROPHILS) as well as non-granular leukocytes (LYMPHOCYTES and MONOCYTES). Blood cells that are devoid of hemoglobin, capable of ameboid motion and phagocytosis, and act as the principal components of the immune system. (UMLS CUI: C0023516)	http://purl.obolibrary.org/obo/NCIT_C12529
Lipid	'Lipids' is a loosely defined term for substances of biological origin that are soluble in nonpolar solvents. They consist of saponifiable lipids, such as glycerides (fats and oils) and phospholipids, as well as nonsaponifiable lipids, principally steroids.	http://purl.obolibrary.org/obo/CHEBI_18059
Liver	An exocrine gland which secretes bile and functions in metabolism of protein and carbohydrate and fat, synthesizes substances involved in the clotting of the blood, synthesizes vitamin A, detoxifies poisonous substances, stores glycogen, and breaks down worn-out erythrocytes[GO].	http://purl.obolibrary.org/obo/UBERON_0002107
Lung	Respiration organ that develops as an oupocketing of the esophagus.	http://purl.obolibrary.org/obo/UBERON_0002048
Lung lymph node	Bronchopulmonary segment lymph node.	http://purl.obolibrary.org/obo/FMA_68286
Lymph node	Any of the rounded masses of lymphoid tissue that are surrounded by a capsule of connective tissue, are distributed along the lymphatic vessels, and contain numerous lymphocytes which filter the flow of lymph.	http://purl.obolibrary.org/obo/UBERON_0000029
Lymphocyte	A lymphocyte is a leukocyte commonly found in the blood and lymph that has the characteristics of a large nucleus, a neutral staining cytoplasm, and prominent heterochromatin. [database_cross_reference: GOC:add][database_cross_reference: ISBN:0781735149][database_cross_reference: ISBN:0683073696]	http://purl.obolibrary.org/obo/CL_0000542

Macrophage	A mononuclear phagocyte present in variety of tissues, typically differentiated from monocytes, capable of phagocytosing a variety of extracellular particulate material, including immune complexes, microorganisms, and dead cells. Morphology: Diameter 30_M-80 _M, abundant cytoplasm, low N/C ratio, eccentric nucleus. Irregular shape with pseudopods, highly adhesive. Contain vacuoles and phagosomes, may contain azurophilic granules; markers: Mouse and: CD68, in most cases CD11b. Mouse: in most cases F4/80+; role or process: immune, antigen presentation, and remodelling; lineage: hematopoietic, myeloid.	http://purl.obolibrary.org/obo/CL_0000235
Mesenteric lymph node	The lymph nodes located in the mesentery, of which there are 3 classes: ileocolic, juxtaintestinal mesenteric, and central superior group.	http://purl.obolibrary.org/obo/UBERON_0002509
Monocyte	CD3-, CD19, CD20, CD56-, CD14+	http://purl.obolibrary.org/obo/CL_0000576; http://purl.obolibrary.org/obo/CL_0000860
Mouse Ear	Mouse Ear (UMLS CUI: C1512159)	http://purl.obolibrary.org/obo/NCIT_C22712
Mucosa	The moist, inner lining of some organs and body cavities (such as the nose, mouth, lungs, and stomach). Glands in the mucosa make mucus (a thick, slippery fluid).	http://purl.obolibrary.org/obo/NCIT_C13166
Multiple Epithelial Tissues Sample	A sample derived from multiple epithelial tissues.	http://purl.obolibrary.org/obo/NCIT_C189133
Multiple Immune Cells Blood Sample	A sample derived from multiple immune cell types isolated from blood.	http://purl.obolibrary.org/obo/NCIT_C189134
Multiple Immune Cells Tissue Sample	A sample derived from multiple immune cell types isolated from epithelial tissues.	http://purl.obolibrary.org/obo/NCIT_C189135

Nasal lavage fluid	Fluid obtained by irrigation or washout of the nasal cavity and nasal mucosa. [database_cross_reference: Mondofacto_Dictionary:http://www.mondofacto.com/facts/dictionary?]	http://purl.obolibrary.org/obo/BTO_0004977
Nasal Swab	A biospecimen collected from the nasal passages by swabbing.	http://purl.obolibrary.org/obo/NCIT_C132119
Nasal Swab or Nose Specimen	A biospecimen collected from the nasal passages by swabbing.	http://purl.obolibrary.org/obo/NCIT_C155833
Nasopharyngeal Swab Specimen	A biospecimen collected from the back of the throat by swabbing.	http://purl.obolibrary.org/obo/NCIT_C155831
Negative Control	A control sample where a negative result is expected, to help correlate a positive result with the variable being tested. (UMLS CUI: C1947986)	http://purl.obolibrary.org/obo/NCIT_C64357
Neutrophil	has_broad_synonym: polynuclear neutrophilic leucocyte; poly; polymorphonuclear leucocyte; PMN; polymorphonuclear neutrophil; polymorphonuclear leukocyte; polynuclear neutrophilic leukocyte Any of the immature or mature forms of a granular leukocyte that in its mature form has a nucleus with three to five lobes connected by slender threads of chromatin, and cytoplasm containing fine inconspicuous granules and stainable by neutral dyes. database_cross_reference: FMA:62860; BTO:0000130; CALOHA:TS-0688 [database_cross_reference: ISBN:0721601464]	http://purl.obolibrary.org/obo/CL_0000775
NK cell	A lymphocyte that can spontaneously kill a variety of target cells without prior antigenic activation via germline encoded activation receptors and also regulate immune responses via cytokine release and direct contact with other cells.	http://purl.obolibrary.org/obo/CL_0000623
Non-B-cell Non T-cell Sorted Blood Sample	A sample of non-B-cells and non-T-cells that were obtained from a blood specimen whose cellular components were sorted first.	http://purl.obolibrary.org/obo/NCIT_C189130

Not Specified	Sample Type is not specified or not received. If no Sample Type value is received, then this is the system default value.	
Optic Nerve	The nerve that carries messages from the retina to the brain. (UMLS CUI: C0029130)	http://purl.obolibrary.org/obo/NCIT_C12761
Organoids	An organization of cells into an organ-like structure. Organoids can be generated in culture. They are also found in certain neoplasms. An organization of cells into an organ-like structure. Organoids can be generated in culture. They are also found in certain neoplasms. (UMLS CUI: C0029250)	http://purl.obolibrary.org/obo/NCIT_C172259
Oropharyngeal Swab Specimen	A biospecimen collected from the oropharynx by swabbing.	http://purl.obolibrary.org/obo/NCIT_C155835
Osteoblasts	Bone-forming cells which secrete an EXTRACELLULAR MATRIX. HYDROXYAPATITE crystals are then deposited into the matrix to form bone. Cells which secrete an extracellular matrix into which hydroxyapaetite crystals are deposited to form bone. (UMLS CUI: C0029418)	http://purl.obolibrary.org/obo/NCIT_C12568
Other	A sample type that is not provided in the preferred values list.	
Pancreas	A digestive organ in the abdomen that has both endocrine and exocrine functions. An organ behind the lower part of the stomach that is the shape of a fish and about the size of a hand. It is a compound gland composed of both exocrine and endocrine tissues. The endocrine pancreas makes insulin so that the body can use glucose (sugar) for energy. The exocrine pancreas makes enzymes that help the body digest food. Spread all over the pancreas are areas called the Islets of Langerhans. The cells in these areas each have a special purpose. The alpha cells make glucagon, which raises the level of glucose in the blood; the beta cells make insulin; the delta cells make somatostatin. There are also PP cells and D1 cells, about which little is known. (UMLS CUI: C0030274)	http://purl.obolibrary.org/obo/NCIT_C12393

Pancreatic Stellate Cells	A Star-shaped, myofibroblast-like cells located in the periacinar, perivascular, and periductal regions of the EXOCRINE PANCREAS. They play a key role in the pathobiology of FIBROSIS; PANCREATITIS; and PANCREATIC CANCER. When pancreatic stellate cells are activated in response to an injury, they proliferate and synthesize large amounts of extracellular matrix. Pancreatic cancer cells can increase the activation of pancreatic stellate cells, which leads to fibrosis. (UMLS CUI: C2936598)	http://purl.obolibrary.org/obo/NCIT_C107531
PBL	Peripheral Blood Lymphocyte (UMLS CUI:C0599819)	http://purl.obolibrary.org/obo/NCIT_C12938
PBMC	Peripheral Blood Mononuclear Cell- A leukocyte with a single non-segmented nucleus in the mature form.	http://purl.obolibrary.org/obo/CL_0000842
Placenta	Organ of metabolic interchange between fetus and mother, partly of embryonic origin and partly of maternal origin. The fetal portion of the placenta is known as the villous chorion. The maternal portion is known as the decidua basalis. The two portions are held together by anchoring villi that are anchored to the decidua basalis by the cytotrophoblastic shell. database_cross_reference: http://en.wikipedia.org/wiki/Placenta[database_cross_reference: http://www.med.umich.edu/lrc/coursepages/m1/embryology/embryo/06placenta.htm]	http://purl.obolibrary.org/obo/UBERON_0001987
Plasma	Body substance in liquid state contained in the lumen of arterial and venous trees, blood capillary and the cardiac chambers; constitutes the liquid phase of blood.	http://purl.obolibrary.org/obo/UBERON_0001969
Pooled Sample	A sample containing a mixture of multiple individual specimens of interest that were collected in a study. (UMLS CUI: C1709595)	http://purl.obolibrary.org/obo/NCIT_C165587
Popliteal lymph node	The lymph nodes which drain the legs; contained in the popliteal fossa.	http://purl.obolibrary.org/obo/UBERON_0001543
Positive Control	A control sample that is known to produce a positive result if the test is working as expected. (UMLS CUI: C1883676)	http://purl.obolibrary.org/obo/NCIT_C64356

Protein	A biological macromolecule minimally consisting of one polypeptide chain synthesized at the ribosome.	http://purl.obolibrary.org/obo/CHEBI_36080
Rectal Swab Specimen	A biospecimen collected from the rectum by swabbing.	http://purl.obolibrary.org/obo/NCIT_C173641
Red Blood Cell	A red blood cell. In mammals, mature erythrocytes are biconcave disks containing hemoglobin whose function is to transport oxygen. database_cross_reference: MESH:A11.118.290database_cross_reference: GOC:tfm	http://purl.obolibrary.org/obo/CL_0000232
Saliva	A fluid produced in the oral cavity by salivary glands, typically used in predigestion, but also in other functions.	http://purl.obolibrary.org/obo/UBERON_0001836
Salivary Glands	An exocrine gland that secretes saliva. Salivary glands are mostly located in and around the oral cavity. (UMLS CUI: C0036098)	http://purl.obolibrary.org/obo/NCIT_C12426
Serum	Body substance derived from plasma by the elimination of fibrinogen.	http://purl.obolibrary.org/obo/UBERON_0001977
Skin of body	Nonparenchymatous organ that consists of the dermis and epidermis. Subdivisions of the skin surround various body parts; as a whole, the skin constitutes the external layer of the body.	http://purl.obolibrary.org/obo/UBERON_0002097
Small intestine	Subdivision of digestive tract that connects the stomach to the large intestine and is where much of the digestion and absorption of food takes place (with the exception of ruminants).	http://purl.obolibrary.org/obo/UBERON_0002108
Sorted Tissue Sample	A sample derived from sorted tissues.	http://purl.obolibrary.org/obo/NCIT_C189132
Spleen	The organ that functions to filter blood and to store red corpuscles and platelets.	http://purl.obolibrary.org/obo/UBERON_0002106
Sputum	Material containing mucus, cellular debris, microorganisms and sometimes blood or pus. It is ejected through the mouth from the lungs, bronchi, and trachea. (UMLS CUI: C0038056)	http://purl.obolibrary.org/obo/NCIT_C13278

Stomach	An expanded region of the vertebrate alimentary tract that serves as a food storage compartment and digestive organ. A stomach is lined, in whole or in part by a glandular epithelium.	http://purl.obolibrary.org/obo/UBERON_0000945
Synovial fluid	Transudate contained in the synovial cavity of joints, and in the cavity of tendon sheaths and bursae.	http://purl.obolibrary.org/obo/UBERON_0001090
Synovial tissue	Thin, loose vascular connective tissue that makes up the membranes surrounding joints and the sheaths protecting tendons (particularly flexor tendons in the hands and feet) where they pass over bony prominences.	http://purl.obolibrary.org/obo/UBERON_0007616
T cell	CD3+	http://purl.obolibrary.org/obo/CL_0000084
Thymus	Anatomical structure of largely lymphoid tissue that functions in cell-mediated immunity by being the site where T cells develop.	http://purl.obolibrary.org/obo/UBERON_0002370
Tonsil	Either of the two small almond-shaped masses of lymph tissue found on either side of the oropharynx.	http://purl.obolibrary.org/obo/UBERON_0002372
Trachea	The trachea is the portion of the airway that attaches to the bronchi as it branches [GO:dph]. [database_cross_reference: GO:0060438][database_cross_reference: http://en.wikipedia.org/wiki/Vertebrate_trachea]	http://purl.obolibrary.org/obo/UBERON_0003126
Tumor Tissue	A tumor sample, or entire tumor that is removed for microscopic examination.	http://purl.obolibrary.org/obo/NCIT_C18009
Umbilical cord blood	Blood that remains in the placenta and in the attached umbilical cord after childbirth[WP]. [database_cross_reference: http://en.wikipedia.org/wiki/Cord_blood]	http://purl.obolibrary.org/obo/UBERON_0012168
Unsorted Tissue Sample	A sample derived from multiple, unsorted tissues.	http://purl.obolibrary.org/obo/NCIT_C189131
Urinary bladder	Distensible musculomembranous organ situated in the anterior part of the pelvic cavity in which urine collects before excretion	http://purl.obolibrary.org/obo/UBERON_0001255

Urine	Excretion that is the output of a kidney database_cross_reference: http://en.wikipedia.org/wiki/Urine[database_cross_reference: https://github.com/geneontology/go-ontology/issues/11025]	http://purl.obolibrary.org/obo/UBERON_0001088
Vagina	A fibromuscular tubular tract leading from the uterus to the exterior of the body in female placental mammals and marsupials, or to the cloaca in female birds, monotremes, and some reptiles[WP]. [database_cross_reference: http://orcid.org/0000-0002-6601-2165] [database_cross_reference: http://en.wikipedia.org/wiki/Vagina]	http://purl.obolibrary.org/obo/UBERON_0000996
Whole blood	Circulating body substance which consists of blood plasma and hemoglobin-carrying red blood cells. Excludes blood analogues (see UBERON:0000179 haemolymphatic fluid).	http://purl.obolibrary.org/obo/UBERON_0000178

43. **lk_source_type**

Name	Description
CONTROL SAMPLE	Sample used to perform quality control of assay results.
EXPSAMPLE	Biological sample that is assayed or measured.
STANDARD CURVE	An analysis product from analyzing the assay result from known quantities and used to interpret the assay result from a sample.

44. **lk_species**

Name	Description	Link	ID
Anas platyrhynchos	Mallard duck	http://purl.obolibrary.org/obo/NCBITaxon_8839	8839
Aotus nancymaae	Ma's night monkey	http://purl.obolibrary.org/obo/NCBITaxon_37293	37293

Canis lupus familiaris	dog	http://purl.obolibrary.org/obo/NCBITaxon_9615	9615
Cavia porcellus	guinea pig	http://purl.obolibrary.org/obo/NCBITaxon_10141	10141
Chlorocebus sabaeus	Green monkey	http://purl.obolibrary.org/obo/NCBITaxon_60711	60711
Drosophila melanogaster	Fruit Fly	http://purl.obolibrary.org/obo/NCBITaxon_7227	7227
Gallus gallus	Chicken	http://purl.obolibrary.org/obo/NCBITaxon_9031	9031
Homo sapiens	Human	http://purl.obolibrary.org/obo/NCBITaxon_9606	9606
Macaca fascicularis	Macaca fascicularis	http://purl.obolibrary.org/obo/NCBITaxon_9541	9541
Macaca mulatta	Rhesus macaque	http://purl.obolibrary.org/obo/NCBITaxon_9544	9544
Mesocricetus auratus	golden hamster	http://purl.obolibrary.org/obo/NCBITaxon_10036	10036
Mus musculus	Mouse	http://purl.obolibrary.org/obo/NCBITaxon_10090	10090
Mus musculus castaneus	Southeastern Asian house mouse	http://purl.obolibrary.org/obo/NCBITaxon_10091	10091

Mus spretus	Western wild mouse	http://purl.obolibrary.org/obo/NCBITaxon_10096	10096
Mustela putorius furo	domestic ferret	http://purl.obolibrary.org/obo/NCBITaxon_9669	9669
Neogale vison	American mink	http://purl.obolibrary.org/obo/NCBITaxon_452646	452646
Not Specified	Not Specified	Not Specified	Not Specif
Odocoileus virginianus	white-tailed deer	http://purl.obolibrary.org/obo/NCBITaxon_9874	9874
Other	Other	Other	Other
Pan troglodytes	Chimpanzee	http://purl.obolibrary.org/obo/NCBITaxon_9598	9598
Rattus norvegicus	Rat	http://purl.obolibrary.org/obo/NCBITaxon_10116	10116
Rattus rattus	Rat - Brown	http://purl.obolibrary.org/obo/NCBITaxon_10117	10117
Sigmodon hispidus	Hispid Cotton Rat	http://purl.obolibrary.org/obo/NCBITaxon_42415	42415
Sus scrofa domesticus	domestic pig	http://purl.obolibrary.org/obo/NCBITaxon_9825	9825

45. **lk_study_condition_pref_mappng**

Name	Description
condition_reported	condition_preferred

(H3N2) infection	swine influenza
2019 Novel Coronavirus (2019-nCoV)	COVID-19
2019-nCoV infection	COVID-19
A/Brisbane/59/07	influenza
acantholysis bullosa	epidermolysis bullosa
Acid reflux	gastroesophageal reflux disease
acquired Immune deficiency	acquired immunodeficiency syndrome
Acropustulosis	pustulosis of palm and sole
acute Bronchitis	bronchitis
acute disseminated encephalitis	acute disseminated encephalomyelitis
Acute Febrile Neutrophilic Dermatosis	Sweet syndrome
acute hepatitis	hepatitis
acute infective polyneuritis	Guillain-Barre syndrome
acute inflammatory demyelinating polyradiculopathy	Guillain-Barre syndrome
acute influenza infection	influenza
acute influenza invfection	influenza
acute juvenile rheumatoid arthritis	juvenile rheumatoid arthritis
acute peptic ulcer with hemorrhage	peptic ulcer disease
acute peptic ulcer with hemorrhage and perforation	peptic ulcer disease
acute peptic ulcer without hemorrhage AND without perforation	peptic ulcer disease
acute pharyngitis	pharyngitis
acute postinfectious polyneuropathy	Guillain-Barre syndrome
acute sore throat	pharyngitis
Addison disease	Addison's disease
Addison disease, chronic adrenal insufficiency	Addison's disease
Addison's anaemia	pernicious anemia
ADEM	acute disseminated encephalomyelitis
ADRENAL INSUFFICIENCY, CONGENITAL, WITH 46,XY SEX REVERSAL, PARTIAL OR COMPLETE	congenital adrenal insufficiency
adult glioblastoma multiforme	glioblastoma
adults and neonates	Aging
adults of different ages	Aging
Age-associated	Aging
Age-dependent	Aging
Age-related	Aging
Age-specific	Aging
Aging-specific	Aging
AIDS	acquired immunodeficiency syndrome
alcohol abuse	alcohol use disorder

alcoholic intoxication, chronic	alcohol dependence
alcoholism	alcohol dependence
allergic dermatitis	atopic dermatitis
allergic to peanuts	peanut allergy
Allergy to eggs	egg allergy
allergy to peanuts	peanut allergy
alzheimer's	Alzheimer's disease
anaemia	anemia
ANEMIA PERNICIOUS	pernicious anemia
Angiitis	vasculitis
angina pectoris	Angina
Anthrax	anthrax disease
anti-GBM disease	Goodpasture syndrome
anti-glomerular basement membrane disease	Goodpasture syndrome
antiphospholipid antibody syndrome	antiphospholipid syndrome
anxiety	anxiety disorder
anxiety state	anxiety disorder
arterial occlusive disease	peripheral vascular disease
Arthritis or polyarthritis, rheumatic	rheumatoid arthritis
arthritis psoriatica	psoriatic arthritis
arthropathic psoriasis	psoriatic arthritis
as they age	Aging
atopic eczema	atopic dermatitis
Atopic neurodermatitis	atopic dermatitis
atopic rhinitis	allergic rhinitis
Atresia of bile duct	biliary atresia
atrophic Arthritis	rheumatoid arthritis
autoimmune cholangiopathy	autoimmune cholangitis
Autoimmune chronic active hepatitis	autoimmune hepatitis
autoimmune condition	autoimmune disease
autoimmune diseases	autoimmune disease
Autoimmune haemolytic anaemia	autoimmune hemolytic anemia
Autoimmune hemolytic anaemia	autoimmune hemolytic anemia
autoimmune hepatitis with centrilobular necrosis	autoimmune hepatitis
autoimmune hypersensitivity disease	autoimmune disease
avian flu	avian influenza
avian influenza virus (AIV) infection	avian influenza
B/Florida/04/06	influenza
bacterial enteritis	intestinal infectious disease
Bannwarth syndrome	Lyme disease
Bannworth's syndrome	Lyme disease

Besnier's prurigo	atopic dermatitis
Biermer's anaemia	pernicious anemia
Biermer's anemia	pernicious anemia
bilateral pleural effusion	Bilateral pleural effusion (disorder)
biliary atresia, congenital	biliary atresia
biliary liver cirrhosis	primary biliary cholangitis
bird flu	avian influenza
blood cancer	hematologic cancer
Blood Component Transfusion	Blood Transfusion
Blood disease	hematopoietic system disease
blood disorder	hematopoietic system disease
Blood dyscrasia	hematopoietic system disease
Boeck sarcoid	sarcoidosis
bordetella infection	pertussis
BPD	Bronchopulmonary Dysplasia
brain Glioblastoma	brain glioblastoma multiforme
Brain tumor-Glioma	brain glioma
breakbone fever	dengue disease
breast carcinoma	breast cancer
breast tumor	breast cancer
bronchial hyperreactivity	asthma
bronchogenic lung adenocarcinoma	lung adenocarcinoma
C. difficile infection	Clostridium difficile colitis
C. difficile-infected	Clostridium difficile colitis
Cardiac Failure Congestive	congestive heart failure
CARDIAC TRANSPLANT	Heart Transplantation
Cardiac Transplantation	Heart Transplantation
Cardiometabolic Syndrome	Metabolic Syndrome
Cardiomyopathies	cardiomyopathy
cardiopulmonary arrest	cardiac arrest
celiac sprue	celiac disease
Cephalhematoma	Cephalohematoma
Cerebrovascular accident	cerebrovascular disease
cerebrovascular disorder	cerebrovascular disease
CF	cystic fibrosis
changes as a function of age	Aging
CHD	coronary artery disease
chest cold	bronchitis
Chest infection	bronchitis
CHF	congestive heart failure
Chikungunya fever	chikungunya
CHIKV infection	chikungunya

childhood Dermatomyositis	childhood type dermatomyositis
children (0-11 years) versus adolescents (12-21 years)	Aging
Cholera - Vibrio cholerae	cholera
Cholera due to Vibrio cholerae	cholera
cholestatic cirrhosis	primary biliary cholangitis
Chondromalacia, systemic	relapsing polychondritis
chronic angina	Angina
chronic bilateral pleural effusions	Bilateral pleural effusion (disorder)
chronic bronchitis	bronchitis
chronic hepatitis B	hepatitis B
chronic hepatitis C	hepatitis C
chronic idiopathic urticaria	chronic spontaneous urticaria
chronic kidney diseases	chronic kidney disease
chronic nonsuppurative destructive cholangitis	primary biliary cholangitis
chronic obstructive airway disease	chronic obstructive pulmonary disease
chronic obstructive asthma	asthma
chronic obstructive asthma with acute exacerbation	asthma
chronic obstructive asthma with status asthmaticus	asthma
chronic obstructive lung disease	chronic obstructive pulmonary disease
chronic pharyn/nasopharyngitis	pharyngitis
chronic pharyngitis	pharyngitis
chronic pharyngitis and nasopharyngitis	pharyngitis
chronic plaque type psoriasis	chronic plaque psoriasis
chronic sore throat	pharyngitis
chronic tonsillitis	tonsillitis
CI - Chest infection	bronchitis
circulatory arrest	cardiac arrest
Circumscribed alopecia	alopecia areata
circumscribed scleroderma	localized scleroderma
classic dengue	dengue disease
clostridial tetanus	tetanus
clostridium difficile infection	Clostridium difficile colitis
CMV Infection	Cytomegaloviral Infection
CMV-seropositive	Cytomegaloviral Infection
CN-AML	Cytogenetically Normal Acute Myeloid Leukemia
coagulation protein disease	blood coagulation disease
coeliac disease	celiac disease
COLD	chronic obstructive pulmonary disease
Congenital anomaly of heart	congenital heart disease

Congenital atresia of esophagus	esophageal atresia
Congenital biliary atresia	biliary atresia
Congenital choledochal cyst	choledochal cyst
congenital disorder	physical disorder
congenital heart defect	congenital heart disease
Congenital Heart Defects	congenital heart disease
Congenital imperforate esophagus	esophageal atresia
congenital laryngomalacia	laryngomalacia
Congestive heart disease	congestive heart failure
connective and soft tissue neoplasm	sarcoma
Connective tissue disease overlap syndrome	mixed connective tissue disease
connective tissue disorder	connective tissue disease
controlled human malaria infection	malaria
COPD	chronic obstructive pulmonary disease
coronary arteriosclerosis	coronary artery disease
Coronary disease	coronary artery disease
coronary heart disease	coronary artery disease
corynebacterium infection	diphtheria
COVID19	COVID-19
Cranial nerve disorder	cranial nerve disease
Crohn disease	Crohn's disease
Crohn's disease of colon	Crohn's disease
Crohn's disease of large bowel	Crohn's disease
cryptogenic fibrosing alveolitis	idiopathic pulmonary fibrosis
CVA	cerebrovascular disease
cystine storage disease	cystinosis
cytogenically normal acute myeloid leukemia	Cytogenetically Normal Acute Myeloid Leukemia
Cytomegalovirus	Cytomegaloviral Infection
Cytomegalovirus (CMV)	Cytomegaloviral Infection
cytomegalovirus infection	Cytomegaloviral Infection
degenerative arthritis	osteoarthritis
degenerative joint disease	osteoarthritis
dengue endemic	dengue disease
Dengue Fever	dengue disease
dengue infection	dengue disease
dengue virus infection	dengue disease
dengue virus-infected	dengue disease
DENV infection	dengue disease
dermatopolymyositis	dermatomyositis
dermatosclerosis	scleroderma
Devic's disease	neuromyelitis optica

Devic's syndrome	neuromyelitis optica
DHF	dengue hemorrhagic fever
diabetes mellitus, insulin-dependent	type 1 diabetes mellitus
diabetes mellitus, non-insulin-dependent	type 2 diabetes mellitus
Diabetes Mellitus, Type 1	type 1 diabetes mellitus
diabetes type i	type 1 diabetes mellitus
diabetes type ii	type 2 diabetes mellitus
different ages	Aging
disease of haematopoietic system	hematopoietic system disease
disease of hematopoietic system	hematopoietic system disease
disease of subdivision of hemolymphoid system	cardiovascular system disease
DISEASE OF THE BLOOD AND BLOOD-FORMING ORGANS	hematopoietic system disease
disorder of connective tissue	connective tissue disease
disorder of cranial nerve	cranial nerve disease
disorder of liver	liver disease
disseminated lupus erythematosus	systemic lupus erythematosus
donor of a kidney	Kidney Transplantation
E Coli Infection	Escherichia Coli Infection
EAEC infection	Escherichia Coli Infection
EAEC35 infected	Escherichia Coli Infection
Eaton-Lambert syndrome	Lambert-Eaton myasthenic syndrome
Ebola virus disease	Ebola hemorrhagic fever
egg-allergic	egg allergy
elderly	Aging
end stage renal disease on peritoneal dialysis	Dependence on peritoneal dialysis due to end stage renal disease
end stage renal failure	end stage renal disease
end-stage kidney disease	end stage renal disease
Enteroaggretive Escherichia coli (EAEC) infection	Escherichia Coli Infection
ENTEROCOLITIS NECROTIZING	perinatal necrotizing enterocolitis
Epidemiology, Family Medical History	Family Medical History
epilepsy syndrome	epilepsy
epileptic syndrome	epilepsy
Epstein-Barr virus infection	EBV Infection
esophageal atresia and/or tracheoesophageal fistula	esophageal atresia/tracheoesophageal fistula
Ethanol abuse	alcohol use disorder
Exercise induced asthma	asthma
exercise-induced asthma	asthma
exophthalmic goiter	Graves' disease
falciparum malaria	Plasmodium falciparum malaria

familial pemphigus vulgaris	pemphigus vulgaris
Family History	Family Medical History
Family History of	Family Medical History
FGS	focal segmental glomerulosclerosis
FIBROCYSTIC PULMONARY DYSPLASIA	idiopathic pulmonary fibrosis
flu	influenza
focal glomerular sclerosis	focal segmental glomerulosclerosis
focal glomerulosclerosis	focal segmental glomerulosclerosis
food hypersensitivity	food allergy
FORMER	Previous
FSGS	focal segmental glomerulosclerosis
Gastresophageal reflux	gastroesophageal reflux disease
Gastro-esophageal reflux	gastroesophageal reflux disease
Gastroesophageal reflux	gastroesophageal reflux disease
Gastrointestinal Bariatric Surgery	Bariatric Surgery
GBM	glioblastoma
Generalized multiple sclerosis	multiple sclerosis
GERD	gastroesophageal reflux disease
GERD - Gastro-esophageal reflux disease	gastroesophageal reflux disease
german measles	rubella
Gestation	Pregnancy
gestational hypertension	pre-eclampsia
glioblastoma multiforme	glioblastoma
Glioblastoma multiforme of brain	brain glioblastoma multiforme
glioma of the optic nerve	optic nerve glioma
grade IV adult Astrocytic tumor	glioblastoma
Granulomatous Colitis	Crohn's disease
Grave's disease	Graves' disease
Graves disease	Graves' disease
H. influenza	haemophilus meningitis
H. pylori infection	Helicobacter Pylori Infection
H1N1 influenza	swine influenza
H5 influenza	avian influenza
haematopoietic system disease	hematopoietic system disease
haemolytic-uraemic syndrome	hemolytic-uremic syndrome
haemophilius meningitis	haemophilus meningitis
Hay Fever	Seasonal Allergic Rhinitis
HCMV Infection	Cytomegaloviral Infection
healthy adults	healthy
healthy adults- longitudinal follow-up	healthy
healthy appearing infants	healthy
healthy control	healthy

healthy controls	healthy
healthy, nonatopic subjects	healthy
heart attack	myocardial infarction
heart defect	congenital heart disease
Heart Grafting	Heart Transplantation
Heart Malformation	congenital heart disease
heart transplant	Heart Transplantation
Hematologic malignancy	hematologic cancer
Hematologic neoplasm	hematologic cancer
Hematological disease	hematopoietic system disease
Hematological tumors	hematologic cancer
hematopoietic and lymphoid system tumor	hematologic cancer
hematopoietic cancer	hematologic cancer
hematopoietic neoplasm	hematologic cancer
hematopoietic tumors	hematologic cancer
hemoglobinopathies	hemoglobinopathy
hemolytic uremic syndrome	hemolytic-uremic syndrome
hep B	hepatitis B
hepatic disorder	liver disease
Hepatic Transplantation	Liver Transplantation
hepatitis B infection	hepatitis B
hepatitis C infection	hepatitis C
hepatitis nonA nonB	hepatitis C
herpes simplex dermatitis	eczema herpeticum
Herpes simplex dermatitis of eyelid	eczema herpeticum
Herpes simplex eyelid dermatitis	eczema herpeticum
Herpes simplex virus dermatitis	eczema herpeticum
herpes simplex virus eyelid dermatitis	eczema herpeticum
herpes zona	herpes zoster
High blood pressure	hypertension
HIV	human immunodeficiency virus infectious disease
HIV infection	human immunodeficiency virus infectious disease
HTN	hypertension
hyperpiesia	hypertension
hypersensitivity	allergic hypersensitivity disease
hypersensitivity reaction type I disease	allergic hypersensitivity disease
hypersensitivity reaction type II disease	autoimmune disease
hypertension induced by pregnancy	pre-eclampsia
hypertensive disease	hypertension
hypertrophic arthritis	osteoarthritis
HYPOADRENOCORTICISM, FAMILIAL	Addison's disease

Hypoglycaemia	hypoglycemia
hypoimmunity	primary immunodeficiency disease
ichthyoses	ichthyosis
IDDM	type 1 diabetes mellitus
IDIOPATHIC PULMONARY FIBROSIS, FAMILIAL	idiopathic pulmonary fibrosis
idiopathic steatorrhea	celiac disease
idiopathic thrombocytopenic purpura	autoimmune thrombocytopenic purpura
immune deficiency disorder	primary immunodeficiency disease
immune deficiency/hiv/aids	acquired immunodeficiency syndrome
immune system tolerance	Immunologic Tolerance
Immune thrombocytopenic purpura	autoimmune thrombocytopenic purpura
Immune Tolerance	Immunologic Tolerance
immunocompromised condition	Immunocompromised
immunodeficiency syndrome	primary immunodeficiency disease
Immunological Tolerance	Immunologic Tolerance
Imperforate esophagus	esophageal atresia
induced malaria	malaria
infantile cerebral palsy	cerebral palsy
Infantile hemiplegia	hemiplegia
infection by CMV	Cytomegaloviral Infection
infection by EBV	EBV Infection
Infection due to Clostridium tetani	tetanus
infection with West Nile virus	West Nile fever
infections with Y. pestis	plague
infectious disease	disease by infectious agent
Infectious neuronitis	Guillain-Barre syndrome
Inflamed throat	pharyngitis
Influenza A (H5N1)	avian influenza
influenza a virus, h5n1 subtype	avian influenza
influenza A(H1N1)	swine influenza
Influenza A/H1N1	swine influenza
influenza virus A subtype H1N1	swine influenza
Influenza with non-respiratory manifestation	influenza
Influenza with other manifestations	influenza
influenza-H1N1	swine influenza
insular sclerosis	multiple sclerosis
Insulin Dependent Diabetes Mellitus	type 1 diabetes mellitus
insulin resistance	type 2 diabetes mellitus
insulin-dependent diabetes mellitus	type 1 diabetes mellitus
intra-amniotic infection	chorioamnionitis
invasive gastric cancer	Malignant Gastric Neoplasm

irritable bowel syndrome - diarrhea type	Irritable bowel syndrome with diarrhea
islet transplantation	Pancreatic Islet Transplantation
islets of Langerhans transplantation	Pancreatic Islet Transplantation
jia	juvenile rheumatoid arthritis
jungle yellow fever	yellow fever
juvenile chronic polyarthritis	juvenile rheumatoid arthritis
Juvenile Dermatomyositis	childhood type dermatomyositis
Juvenile Idiopathic Arthritis	juvenile rheumatoid arthritis
juvenile idiopathic arthritis	juvenile rheumatoid arthritis
kidney failure, chronic	kidney failure
Kidney Grafting	Kidney Transplantation
kidney stones	nephrolithiasis
Kidney Transplanation	Kidney Transplantation
kidney transplant	Kidney Transplantation
Lambert-Eaton syndrome	Lambert-Eaton myasthenic syndrome
large pulmonary nodules	Multiple Pulmonary Nodules
latent mycobacterium tuberculosis infection	tuberculosis
LCM	lymphocytic choriomeningitis
Left-sided ulcerative colitis	ulcerative colitis
LEMS	Lambert-Eaton myasthenic syndrome
lichen ruber planus	lichen planus
Lichen, ruber planus	lichen planus
liver cancer DOID:3571	liver cancer
Liver Grafting	Liver Transplantation
liver transplant	Liver Transplantation
localised morphea	localized scleroderma
localised morphoea	localized scleroderma
localised scleroderma	localized scleroderma
localized morphea	localized scleroderma
lower grade glioma	brain glioma
lung grafting	Lung Transplantation
lung transplant	Lung Transplantation
lupus	lupus erythematosus
Lupus Erythematosus, systemic	systemic lupus erythematosus
lyme	Lyme disease
Lyme borreliosis	Lyme disease
lyme neuroborreliosis	Lyme disease
lymphocytic choriomeningitis virus	lymphocytic choriomeningitis
Lymphocytic choriomeningitis virus encephalomyelitis	lymphocytic choriomeningitis
Lymphocytic meningitis	lymphocytic choriomeningitis
Lymphocytic meningoencephalitis	lymphocytic choriomeningitis
lymphogranulomatosis	sarcoidosis

lymphoid cancer	lymphoma
Malaria by Plasmodium vivax	Plasmodium vivax malaria
Malaria fever, subtertian	Plasmodium falciparum malaria
malaria infection	malaria
malignancy with pulmonary metastasis	Malignant Lung Neoplasm
malignant hematopoietic neoplasm	hematologic cancer
malignant neoplasm	cancer
malignant neoplasm of breast	breast cancer
malignant neoplasm of lung	Malignant Lung Neoplasm
malignant neoplasm of stomach	Malignant Gastric Neoplasm
malignant neoplasms	cancer
malignant tertian fever	Plasmodium falciparum malaria
malignant tumor	cancer
malignant tumor of the breast	breast cancer
mammary cancer	breast cancer
mammary tumor	breast cancer
meningococcus	meningococcal meningitis
mental or behavioural disorder	psychotic disorder
metabolic disease	disease of metabolism
Metabolic Syndrome X	Metabolic Syndrome
milk allergic reaction	milk allergy
mitral regurgitation	mitral valve insufficiency
mixed collagen vascular disease	mixed connective tissue disease
monarticular juvenile rheumatoid arthritis	juvenile rheumatoid arthritis
morbilli	measles
Morphea	localized scleroderma
mtb infection	tuberculosis
mucoviscidosis	cystic fibrosis
Multiple Sclereosis	multiple sclerosis
Myocardial infarct	myocardial infarction
Myocardial inflammation	myocarditis
n/a	healthy
na	healthy
NANBH	hepatitis C
Narcolepsy, without cataplexy	narcolepsy
necrotizing enterocolitis	perinatal necrotizing enterocolitis
Necrotizing enterocolitis in fetus OR newborn	perinatal necrotizing enterocolitis
Necrotizing respiratory granulomatosis	granulomatosis with polyangiitis
neonatal and adult	Aging
Neonatal Candida infection	neonatal candidiasis
Neonatal HIE	Neonatal Hypoxic Ischemic Encephalopathy

Neonatal monilia infection	neonatal candidiasis
neonatal moniliasis	neonatal candidiasis
nephrostomy tube	Nephrostomy tube (physical object)
nephrostomy tubes	Nephrostomy tube (physical object)
neuroborreliosis	Lyme disease
neurofibromatosis type 1 (nf1)	neurofibromatosis 1
neuroinvasive west nile virus (wnv)	West Nile encephalitis
Neurological Lyme disease	Lyme disease
neuromuscular condition	neuromuscular disease
neuromuscular diseases	neuromuscular disease
Newcastle's disease	Newcastle disease
NIDDM	type 2 diabetes mellitus
no disease	healthy
non-insulin-dependent diabetes mellitus	type 2 diabetes mellitus
Non-seasonal Allergic Rhinitis	Perennial Allergic Rhinitis
non-syndromic ichthyosis	ichthyosis
nonsmall cell adenocarcinoma	lung adenocarcinoma
normal donors	healthy
Normal Karyotype Acute Myeloid Leukemia	Cytogenetically Normal Acute Myeloid Leukemia
Not Applicable	Not Applicable
Not Specified	Not Specified
Obstructive Uropathy	urinary tract obstruction
Oesophageal atresia	esophageal atresia
older people	Aging
older subjects	Aging
optic glioma	optic nerve glioma
Ordinary smallpox	smallpox
osteoarthrosis	osteoarthritis
Osteoarthrosis and allied disorder	osteoarthritis
P. coatneyi	malaria
P. cynomolgi	malaria
P450scc DEFICIENCY	congenital adrenal insufficiency
palmoplantar pustulosis	pustulosis of palm and sole
pancreas grafting	Pancreas Transplantation
pancreatic carcinoma	pancreatic cancer
paralysis agitans	Parkinson's disease
Paraplegia, lower	paraplegia
Parkinson disease	Parkinson's disease
paroxysmal sleep	narcolepsy
partial bowel resection with ostomy	Partial Small Intestine Resection
partial excision of small intestine	Partial Small Intestine Resection
pauciarticular juvenile arthritis	juvenile rheumatoid arthritis

Pauciarticular onset juvenile chronic arthritis	juvenile rheumatoid arthritis
peanut allergic reaction	peanut allergy
peanut-allergic	peanut allergy
Pediatric Crohn's disease	Crohn's disease
pediatric heart transplantation	Heart Transplantation
pediatric lung transplantation	Lung Transplantation
pediatric organ donors in the first two years of life, as compared to adult organ donors	Aging
pediatric renal transplantation	Kidney Transplantation
Perenial allergic rhinitis	allergic rhinitis
Perinatal necrotising enterocolitis	perinatal necrotizing enterocolitis
pernicious anaemia	pernicious anemia
Persistent sore throat	pharyngitis
pervasive development disorder	pervasive developmental disorder
pH1N1	swine influenza
Pharyngeal disorder	pharyngitis
Pharyngitis - acute	pharyngitis
pituitary disease	pituitary gland disease
Plasmodium falciparum (Pf) malaria	Plasmodium falciparum malaria
pneumococcus	Streptococcus pneumonia
pollenosis	allergic rhinitis
Polymyositis with skin involvement	dermatomyositis
Post-infectious polyneuritis	Guillain-Barre syndrome
post-traumatic stress synmptoms (ptss)	post-traumatic stress disorder
Postinfectious polyneuritis	Guillain-Barre syndrome
Postinfective encephalitis	postinfectious encephalitis
Postnatal infantile hemiplegia	hemiplegia
postpartum coagulation defect	blood coagulation disease
postpartum coagulation defect with delivery	blood coagulation disease
pre-eclamptic toxaemia	pre-eclampsia
Pre-Term	Preterm Birth
Pre-term birth	Preterm Birth
preeclampsia	pre-eclampsia
preeclampsia/eclampsia	pre-eclampsia
pregnancy associated hypertension	pre-eclampsia
pregnancy toxemia	pre-eclampsia
pregnant	Pregnancy
Premature delivery	Preterm Birth
Preterm	Preterm Birth
Preterm Delivery	Preterm Birth
preterm infant	Preterm Birth

preterm pregnancy	Preterm Birth
Previously	Previous
primary adrenocortical insufficiency	Addison's disease
primary biliary cirrhosis	primary biliary cholangitis
primary breast cancer	breast cancer
primary cancer	cancer
primary glioblastoma multiforme	glioblastoma
primary hypoadrenalism	Addison's disease
Primary Sjogren's syndrome	Primary Sjogren Syndrome
Primary Sjögren Syndrome	Primary Sjogren Syndrome
primary thrombocytopenic purpura	autoimmune thrombocytopenic purpura
progressive systemic sclerosis	systemic scleroderma
proteinuric hypertension of pregnancy	pre-eclampsia
Pseudo-fowlpest	Newcastle disease
Pseudomembranous colitis	Clostridium difficile colitis
Pseudomembranous enterocolitis in newborn	perinatal necrotizing enterocolitis
Psoriais	psoriasis
psoriais, atopic dermatitis	psoriasis
psoriatic arthrits	psoriatic arthritis
psychological condition	Psychiatric Disorder
psychological/psychiatric condition	Psychiatric Disorder
Pustular psoriasis of the palms and/or soles	pustulosis of palm and sole
Raynaud's disease	Raynaud disease
Raynaud's syndrome	Raynaud disease
recurrent urinary tract infection	Recurrent urinary tract infections
recurrent uti	Recurrent urinary tract infections
recurrent wheezy bronchitis	bronchitis
renal (kidney) transplant	Kidney Transplantation
renal cortical necrosis	kidney cortex necrosis
renal Cyst	cystic kidney disease
renal failure	kidney failure
renal transplant	Kidney Transplantation
renal transplantation	Kidney Transplantation
renal tubulo-interstitial disease	interstitial nephritis
rheumatic carditis	rheumatic heart disease
rheumatiod arthitis	rheumatoid arthritis
rheumatoid arthritis (ra)	rheumatoid arthritis
rsv	respiratory syncytial virus infectious disease
S. pneumoniae	Streptococcus pneumonia
Salmonella infection	salmonellosis

SARS-CoV-2 infection	COVID-19
Scleroderma	systemic scleroderma
Scleroderma syndrome	systemic scleroderma
Scleroderma, circumscribed or localised	localized scleroderma
Scleroderma, circumscribed or localized	localized scleroderma
seasonal allergic rhinitis	allergic rhinitis
secondary encephalitis	postinfectious encephalitis
Self Tolerance	Immunologic Tolerance
Sexually Transmitted Disease	Sexually Transmitted Disorder
Sexually Transmitted Infection	Sexually Transmitted Disorder
Shingles	herpes zoster
shingles (herpes zoster)	herpes zoster
Sicca syndrome	Sjogren's syndrome
sjia	juvenile rheumatoid arthritis
Sjogren syndrome	Sjogren's syndrome
SLE - Lupus Erythematosus, systemic	systemic lupus erythematosus
Solid Tumor	Solid Neoplasm
Solid tumor, NOS	Solid Neoplasm
Sore throat - chronic	pharyngitis
spongioblastoma multiforme	glioblastoma
spontaneous pre-term birth	Preterm Birth
Staphylococcus aureus	Staphylococcus Aureus Infection
STD	Sexually Transmitted Disorder
STI	Sexually Transmitted Disorder
Still's disease	juvenile rheumatoid arthritis
Stone - kidney/ureter	nephrolithiasis
strep throat	Streptococcal Pharyngitis
stroke	cerebrovascular disease
substance use disorders	substance-related disorder
Sweet's syndrome	Sweet syndrome
Sylvatic yellow fever	yellow fever
systemic juvenile idiopathic arthritis	juvenile rheumatoid arthritis
systemic juvenile rheumatoid arthritis	juvenile rheumatoid arthritis
Systemic Lupus	systemic lupus erythematosus
systemic lupus erythematosus (sle)	systemic lupus erythematosus
Systemic Sclerosis	systemic scleroderma
Systemic Sclerosis-Associated Pulmonary Arterial Hypertension	hypertension
T1DM	type 1 diabetes mellitus
T2D	type 2 diabetes mellitus
Throat infection - tonsillitis	tonsillitis
Thyroid deficiency	hypothyroidism
Thyroid insufficiency	hypothyroidism

Tolerance	Immunologic Tolerance
toxaemia of pregnancy	pre-eclampsia
tracheoesophageal fistula with or without esohageal atresia	esophageal atresia/tracheoesophageal fistula
Transfusion	Blood Transfusion
Transfusion of Blood Products	Blood Transfusion
Transplantation of Liver	Liver Transplantation
tumor of soft tissue and skeleton	sarcoma
Type 1 Diabetes	type 1 diabetes mellitus
Type 1 Diabetic	type 1 diabetes mellitus
type 2 diabetes	type 2 diabetes mellitus
type I diabetes mellitus	type 1 diabetes mellitus
type II diabetes mellitus	type 2 diabetes mellitus
Typhoid	typhoid fever
urban yellow fever	yellow fever
urinary obstruction	urinary tract obstruction
vaccinia vaccine	smallpox
Varicella	chickenpox
varicella	chickenpox
varicella zoster	chickenpox
vascular hypertensive disorder	hypertension
VD	Sexually Transmitted Disorder
Venereal Disease	Sexually Transmitted Disorder
Vibrio cholerae	cholera
viral antigens (vaccinia	smallpox
Viral hepatitis C	hepatitis C
Viral hepatitis, type A	hepatitis A
Vivax Malaria	Plasmodium vivax malaria
WC - Whooping cough	pertussis
Weak heart	congestive heart failure
Wegener granulomatosis, formerly	granulomatosis with polyangiitis
Wegener's Granulomatosis	granulomatosis with polyangiitis
Weight Loss Surgery	Bariatric Surgery
West Nile encephalopathy	West Nile encephalitis
West Nile fever encephalitis	West Nile encephalitis
West Nile Fever with encephalitis	West Nile encephalitis
West Nile virus (WNv) infection	West Nile fever
West Nile virus (WNV)-infected	West Nile fever
West Nile Virus Infection	West Nile fever
whooping cough	pertussis
WNV disease	West Nile fever
WNv infection	West Nile fever
wnv infection	West Nile fever

Wuhan coronavirus infection	COVID-19
Wuhan seafood market pneumonia virus infection	COVID-19
xerodermosteosis	Sjogren's syndrome
Yellow fever, sylvan	yellow fever
YFEV	yellow fever
young and aged	Aging
young and elderly	Aging
Zika virus disease	Zika fever
Zika virus infection	Zika fever
Zika virus(ZIKV) infection	Zika fever
zoster	herpes zoster

46. **lk_study_file_type**

Name	Description	Link
Adverse Events	Study file type is Adverse Events.	http://purl.obolibrary.org/obo/NCIT_C41331
Assessment Results	Study file type is Assessment Results.	http://purl.obolibrary.org/obo/NCIT_C25217
Case Report Form	Study file type is Case Report Form.	http://purl.obolibrary.org/obo/NCIT_C40988
Case Report Form Data	Information collected from a subject and presented on a case report form. (NCI)	https://uts.nlm.nih.gov/uts/umls/concept/C4684580
Checksum	A fixed-size datum calculated (by using a hash function) for a molecular sequence or structure, typically for purposes of error detection or indexing	http://purl.obolibrary.org/obo/MI_1212
Clinical Data	Data obtained through patient examination or treatment.	http://purl.obolibrary.org/obo/NCIT_C15783
Concomitant Medications	Study file type is Concomitant Medications.	http://purl.obolibrary.org/obo/NCIT_C49568
Data Dictionary	A collection of descriptions of the data objects or items in a data model.	http://purl.obolibrary.org/obo/T4FS_0000073

Database cross-mapping	The cross-mapping is typically a table where each row is an accession number and each column is a database being cross-referenced. The cells give the accession number or identifier of the corresponding entry in a database. If a cell in the table is not filled then no mapping could be found for the database. Additional information might be given on version, date etc. A mapping of the accession numbers (or other database identifier) of entries between (typically) two biological or biomedical databases.	http://edamontology.org/data_0954
Demographics	Study file type is Demographics.	http://purl.obolibrary.org/obo/NCIT_C16495
Epidemiological Data	Identify post disaster needs (e.g., ongoing disaster-related health care needs, collection of epidemiological data, assessment of cause of disaster, steps for prevention of reoccurrence)	https://uts.nlm.nih.gov/uts/umls/concept/C0811339
Family Member	Any of the individuals who are descended from a common progenitor, related by marriage or other legal tie, or by a feeling of closeness. (NCI)	https://uts.nlm.nih.gov/uts/umls/concept/C0086282
Image File	An electronic file containing imaging data.	http://purl.obolibrary.org/obo/NCIT_C175246
Interventions	Study file type is Interventions.	http://purl.obolibrary.org/obo/NCIT_C25218
JSON Summary Description	SeroNet JSON Summary Description	https://www.cancer.gov/research/key-initiatives/covid-19/coronavirus-research-initiatives/serological-sciences-network
Lab Test Results	Study file type is Lab Test Results (e.g. CBC, chemistry, cytokine).	http://purl.obolibrary.org/obo/NCIT_C36292

Medical History Data	Study file type is Medical History Data	http://purl.obolibrary.org/obo/NCIT_C18772
Note	A brief written record. (NCI)	http://purl.obolibrary.org/obo/NCIT_C42619
Patient Reported Outcome	Information collected directly from a patient that typically includes subjective feelings regarding symptoms, functions in daily life, physical, mental, emotional, spiritual, and social well being, and satisfaction with his/her health care. (NCI)	https://uts.nlm.nih.gov/uts/umls/concept/C2987124
Protocol Deviation Data	Study file type is Protocol Deviation Data	http://purl.obolibrary.org/obo/NCIT_C50996
Screening Data	Study file type is Screening Data	http://purl.obolibrary.org/obo/NCIT_C48262
Software Script	A software script is software whose instructions can be executed using a software interpreter.	http://semanticscience.org/resource/SIO_000103
Study Data	Data associated with a study, but not arranged or included in any specific grouping. This is the default setting for data linked to a study.	http://purl.obolibrary.org/obo/NCIT_C64486
Study Medication	Study file type is Study Medication.	http://purl.obolibrary.org/obo/NCIT_C459
Study Summary Description	An abstract of a document detailed description which represents its most significant information	http://purl.obolibrary.org/obo/NCIT_C71141
Substance Use	Study file type is Substance Use.	http://purl.obolibrary.org/obo/NCIT_C49615

47. **lk_subject_location**

Name	Description	Link

Afghanistan	A landlocked country that is located approximately in the center of Asia. It is bordered by Pakistan in the south and east Iran in the west, Turkmenistan, Uzbekistan and Tajikistan in the north, and China in the far northeast. Afghanistan is administratively divided into thirty-four (34) provinces (welayats). Each province is then divided into many provincial districts, and each district normally covers a city or several townships.	http://purl.obolibrary.org/obo/GAZ_00006882
Albania	A country in South Eastern Europe. Albania is bordered by Greece to the south-east, Montenegro to the north, Kosovo to the northeast, and the Republic of Macedonia to the east. It has a coast on the Adriatic Sea to the west, and on the Ionian Sea to the southwest. From the Strait of Otranto, Albania is less than 100 km from Italy. Albania is divided into 12 administrative divisions called (Albanian: official qark/qarku, but often prefekture/prefektura Counties), 36 districts (Rrethe) and 351 municipalities (Bashkia) and communes (Komuna).	http://purl.obolibrary.org/obo/GAZ_00002953
Algeria	A country in North Africa. It is bordered by Tunisia in the northeast, Libya in the east, Niger in the southeast, Mali and Mauritania in the southwest, a few km of the Western Sahara in the west, Morocco in the northwest, and the Mediterranean Sea in the north. It divided into 48 provinces (wilayas), 553 districts (dairas) and 1,541 municipalities (communes, baladiyahs).	http://purl.obolibrary.org/obo/GAZ_00000563
American Samoa	An unincorporated territory of the United States located in the South Pacific Ocean, southeast of the sovereign State of Samoa.	http://purl.obolibrary.org/obo/GAZ_00003957

Andorra	A small landlocked country in western Europe, located in the eastern Pyrenees mountains and bordered by Spain (Catalonia) and France. Andorra consists of seven communities known as parishes (Catalan: parroquies, singular - parroquia). Until relatively recently, it had only six parishes; the seventh, Escaldes-Engordany, was created in 1978. Some parishes have a further territorial subdivision. Ordino, La Massana and Sant Julia de Loria are subdivided into quarts (quarters), while Canillo is subdivided into veinats (neighborhoods). Those mostly coincide with villages, which are found in all parishes.	http://purl.obolibrary.org/obo/GAZ_00002948
Angola	A country in south-central Africa bordering Namibia to the south, Democratic Republic of the Congo to the north, and Zambia to the east, and with a west coast along the Atlantic Ocean. The exclave province Cabinda has a border with the Republic of the Congo and the Democratic Republic of the Congo.	http://purl.obolibrary.org/obo/GAZ_00001095
Antigua and Barbuda	An island nation located on the eastern boundary of the Caribbean Sea with the Atlantic Ocean.	http://purl.obolibrary.org/obo/GAZ_00006883

Argentina	A South American country, constituted as a federation of twenty-three provinces and an autonomous city. It is bordered by Paraguay and Bolivia in the north, Brazil and Uruguay in the northeast, and Chile in the west and south. The country claims the British controlled territories of the Falkland Islands and South Georgia and the South Sandwich Islands. Argentina also claims 969,464 km2 of Antarctica, known as Argentine Antarctica, overlapping other claims made by Chile and the United Kingdom. Argentina is subdivided into twenty-three provinces (Spanish: provincias, singular provincia) and one federal district (Capital de la Republica or Capital de la Nacion, informally the Capital Federal). The federal district and the provinces have their own constitutions, but exist under a federal system. Provinces are then divided into departments (Spanish: departamentos, singular departamento), except for Buenos Aires Province, which is divided into partidos.	http://purl.obolibrary.org/obo/GAZ_00002928
Armenia	A landlocked mountainous country in Eurasia between the Black Sea and the Caspian Sea in the Southern Caucasus. It borders Turkey to the west, Georgia to the north, Azerbaijan to the east, and Iran and the Nakhchivan exclave of Azerbaijan to the south. A transcontinental country at the juncture of Eastern Europe and Western Asia. A former republic of the Soviet Union. Armenia is divided into ten marzes (provinces, singular marz), with the city (kaghak) of Yerevan having special administrative status as the country's capital.	http://purl.obolibrary.org/obo/GAZ_00004094

Australia	A country in the southern hemisphere comprising the mainland of the world's smallest continent, the major island of Tasmania, and a number of other islands in the Indian and Pacific Oceans. The neighbouring countries are Indonesia, East Timor, and Papua New Guinea to the north, the Solomon Islands, Vanuatu, and New Caledonia to the north-east, and New Zealand to the south-east. Australia has six states, two major mainland territories, and other minor territories.	http://purl.obolibrary.org/obo/GAZ_00000463
Austria	A landlocked country in Central Europe. It borders both Germany and the Czech Republic to the north, Slovakia and Hungary to the east, Slovenia and Italy to the south, and Switzerland and Liechtenstein to the west. The capital is the city of Vienna on the Danube River. Austria is divided into nine states (Bundeslander). These states are then divided into districts (Bezirke) and cities (Statutarstadte). Districts are subdivided into municipalities (Gemeinden). Cities have the competencies otherwise granted to both districts and municipalities.	http://purl.obolibrary.org/obo/GAZ_00002942
Azerbaijan	A country in the he South Caucasus region of Eurasia, it is bounded by the Caspian Sea to the east, Russia to the north, Georgia to the northwest, Armenia to the west, and Iran to the south. The Azerbaijani exclave of Nakhchivan is bordered by Armenia to the north and east, Iran to the south and west, and Turkey to the northwest. Nagorno-Karabakh, along with 7 other districts in Azerbaijan's southwest, have been controlled by Armenia since the end of the Nagorno-Karabakh War in 1994. Azerbaijan is divided into 59 rayons 11 city districts (saharlar), and one autonomous republic (muxtar respublika).	http://purl.obolibrary.org/obo/GAZ_00004941

Bahamas	A country consisting of two thousand cays and seven hundred islands that form an archipelago. It is located in the Atlantic Ocean, southeast of Florida and the United States, north of Cuba, the island of Hispanola and the Caribbean, and northwest of the British overseas territory of the Turks and Caicos Islands. It is divided into 32 districts, plus New Providence, whose affairs are handled directly by the central government.	http://purl.obolibrary.org/obo/GAZ_00002733
Bahrain	A borderless island country in the Persian Gulf. Saudi Arabia lies to the west and is connected to Bahrain by the King Fahd Causeway, and Qatar is to the south across the Gulf of Bahrain. Bahrain is split into five governorates.	http://purl.obolibrary.org/obo/GAZ_00005281
Bangladesh	A country in South Asia. It is bordered by India on all sides except for a small border with Myanmar to the far southeast and by the Bay of Bengal to the south. Bangladesh is divided into six administrative divisions. Divisions are subdivided into districts (zila). There are 64 districts in Bangladesh, each further subdivided into upazila (subdistricts) or thana ("police stations").	http://purl.obolibrary.org/obo/GAZ_00003750
Barbados	Barbados	http://purl.obolibrary.org/obo/GAZ_00001251
Belarus	A landlocked country in Eastern Europe, that borders Russia to the north and east, Ukraine to the south, Poland to the west, and Lithuania and Latvia to the north. Its capital is Minsk. Belarus is divided into six voblasts, or provinces. Voblasts are further subdivided into raions (commonly translated as districts or regions). As of 2002, there are six voblasts, 118 raions, 102 towns and 108 urbanized settlements. Minsk is given a special status, due to the city serving as the national capital.	http://purl.obolibrary.org/obo/GAZ_00006886

Belgium	A country in northwest Europe. Belgium shares borders with France (620 km), Germany (167 km), Luxembourg (148 km) and the Netherlands (450 km). The Flemish Region (Flanders) and the Walloon Region (Wallonia) each comprise five provinces; the third region, Brussels-Capital Region, is not a province, nor does it contain any Together, these comprise 589 municipalities, which in general consist of several sub-municipalities (which were independent municipalities before the municipal merger operation mainly in 1977).	http://purl.obolibrary.org/obo/GAZ_00002938
Belize	A country in Central America. It is the only officially English speaking country in the region. Belize was a British colony for more than a century and was known as British Honduras until 1973. It became an independent nation within The Commonwealth in 1981. Belize is divided into 6 districts, which are further divided into 31 constituencies.	http://purl.obolibrary.org/obo/GAZ_00002934
Benin	A country in Western Africa. It borders Togo to the west, Nigeria to the east and Burkina Faso and Niger to the north; its short coastline to the south leads to the Bight of Benin. Its capital is Porto Novo, but the seat of government is Cotonou. Benin is divided into 12 departments and subdivided into 77 communes.	http://purl.obolibrary.org/obo/GAZ_00000904
Bermuda	A British overseas territory in the North Atlantic Ocean. Located off the east coast of the United States, it is situated around 1770 km NE of Miami, Florida and 1350 km S of Halifax, Nova Scotia. Comprised of approximately 138 islands.	http://purl.obolibrary.org/obo/GAZ_00001264

Bhutan	A landlocked nation in South Asia. It is located amidst the eastern end of the Himalaya Mountains and is bordered to the south, east and west by India and to the north by Tibet. Bhutan is separated from Nepal by the Indian State of Sikkim. Bhutan is divided into four dzongdey (administrative zones). Each dzongdey is further divided into dzongkhag (districts). There are twenty dzongkhag in Bhutan. Large dzongkhags are further divided into subdistricts known as dungkhag. At the basic level, groups of villages form a constituency called gewog.	http://purl.obolibrary.org/obo/GAZ_00003920
Bolivia	A landlocked country in central South America. It is bordered by Brazil on the north and east, Paraguay and Argentina on the south, and Chile and Peru on the west. Bolivia is divided into 9 departments (Spanish: departamentos). Each of the departments is subdivided into provinces (provincias), which are further subdivided into municipalities (municipios).	http://purl.obolibrary.org/obo/GAZ_00002511
Borneo	Borneo	http://purl.obolibrary.org/obo/GAZ_00025355
Bosnia and Herzegovina	A country on the Balkan peninsula of Southern Europe. Bordered by Croatia to the north, west and south, Serbia to the east, and Montenegro to the south, Bosnia and Herzegovina is mostly landlocked, except for 26 km of the Adriatic Sea coastline. Bosnia and Herzegovina is now divided into three political regions of which one, the Brcko District is part of the other two, the Federacija Bosne i Hercegovine and the Republika Srpska. All three have an equal constitutional status on the whole territory of Bosnia and Herzegovina.	http://purl.obolibrary.org/obo/GAZ_00006887
Botswana	A landlocked nation in Southern Africa. It is bordered by South Africa to the south and southeast, Namibia to the west, Zambia to the north, and Zimbabwe to the northeast. Botswana is divided into nine districts, which are subdivided into a total twenty-eight subdistricts.	http://purl.obolibrary.org/obo/GAZ_00001097

Brazil	A country in South America. Bordered by the Atlantic Ocean and by Venezuela, Suriname, Guyana and the department of French Guiana to the north, Colombia to the northwest, Bolivia and Peru to the west, Argentina and Paraguay to the southwest, and Uruguay to the south. Federation of twenty-six states (estados) and one federal district (Distrito Federal). The states are subdivided into municipalities. For statistical purposes, the States are grouped into five main regions: North, Northeast, Central-West, Southeast and South.	http://purl.obolibrary.org/obo/GAZ_00002828
Brunei Darussalam	A country located on the north coast of the island of Borneo, in Southeast Asia. Apart from its coastline with the South China Sea it is completely surrounded by the State of Sarawak, Malaysia, and in fact it is separated into two parts by Limbang, which is part of Sarawak. Brunei is divided into four districts (daerah), the districts are subdivided into thirty-eight mukims, which are then divided into kampong (villages).	http://purl.obolibrary.org/obo/GAZ_00003901
Bulgaria	A country in Southeastern Europe, borders five other countries; Romania to the north (mostly along the Danube), Serbia and the Republic of Macedonia to the west, and Greece and Turkey to the south. The Black Sea defines the extent of the country to the east. Since 1999, it has consisted of twenty-eight provinces. The provinces subdivide into 264 municipalities.	http://purl.obolibrary.org/obo/GAZ_00002950
Burkina Faso	A landlocked nation in West Africa. It is surrounded by six countries: Mali to the north, Niger to the east, Benin to the south east, Togo and Ghana to the south, and Cote d'Ivoire to the south west. Burkina Faso is divided into thirteen regions, forty-five provinces, and 301 departments (communes).	http://purl.obolibrary.org/obo/GAZ_00000905

Burundi	A small country in the Great Lakes region of Africa. It is bordered by Rwanda on the north, Tanzania on the south and east, and the Democratic Republic of the Congo on the west. Although the country is landlocked, much of its western border is adjacent to Lake Tanganyika. Burundi is divided into 17 provinces, 117 communes, and 2,638 collines.	http://purl.obolibrary.org/obo/GAZ_00001090
Cambodia	A country in Southeast Asia. The country borders Thailand to its west and northwest, Laos to its northeast, and Vietnam to its east and southeast. In the south it faces the Gulf of Thailand.	http://purl.obolibrary.org/obo/GAZ_00006888
Cameroon	A country of central and western Africa. It borders Nigeria to the west; Chad to the northeast; the Central African Republic to the east; and Equatorial Guinea, Gabon, and the Republic of the Congo to the south. Cameroon's coastline lies on the Bight of Bonny, part of the Gulf of Guinea and the Atlantic Ocean. The Republic of Cameroon is divided into ten provinces and 58 divisions or departments. The divisions are further sub-divided into sub-divisions (arrondissements) and districts.	http://purl.obolibrary.org/obo/GAZ_00001093
Canada	A country occupying most of northern North America, extending from the Atlantic Ocean in the east to the Pacific Ocean in the west and northward into the Arctic Ocean. Canada is a federation composed of ten provinces and three territories; in turn, these may be grouped into regions. Western Canada consists of British Columbia and the three Prairie provinces (Alberta, Saskatchewan, and Manitoba). Central Canada consists of Quebec and Ontario. Atlantic Canada consists of the three Maritime provinces (New Brunswick, Prince Edward Island, and Nova Scotia), along with Newfoundland and Labrador. Eastern Canada refers to Central Canada and Atlantic Canada together. Three territories (Yukon, Northwest Territories, and Nunavut) make up Northern Canada.	http://purl.obolibrary.org/obo/GAZ_00002560

Cape Verde	A republic located on an archipelago in the Macaronesia ecoregion of the North Atlantic Ocean, off the western coast of Africa. Cape Verde is divided into 22 municipalities (concelhos), and subdivided into 32 parishes (freguesias).	http://purl.obolibrary.org/obo/GAZ_00001227
Central African Republic	A landlocked country in Central Africa. It borders Chad in the north, Sudan in the east, the Republic of the Congo and the Democratic Republic of the Congo in the south, and Cameroon in the west. The Central African Republic is divided into 14 administrative prefectures (prefectures), along with 2 economic prefectures (prefectures economiques) and one autonomous commune. The prefectures are further divided into 71 sub-prefectures (sous-prefectures).	http://purl.obolibrary.org/obo/GAZ_00001089
Chad	A landlocked country in central Africa. It is bordered by Libya to the north, Sudan to the east, the Central African Republic to the south, Cameroon and Nigeria to the southwest, and Niger to the west. Chad is divided into 18 regions. The departments are divided into 200 sub-prefectures, which are in turn composed of 446 cantons. This is due to change.	http://purl.obolibrary.org/obo/GAZ_00000586

Chile	A country in South America occupying a long and narrow coastal strip wedged between the Andes mountains and the Pacific Ocean. The Pacific forms the country's entire western border, with Peru to the north, Bolivia to the northeast, Argentina to the east, and the Drake Passage at the country's southernmost tip. Chile claims 1,250,000 km2 of territory in Antarctica. Chile is divided into 15 regions. Every region is further divided into provinces. Finally each province is divided into communes. Each region is designated by a name and a Roman numeral, assigned from north to south. The only exception is the region housing the nation's capital, which is designated RM, that stands for Region Metropolitana (Metropolitan Region). Two new regions were created in 2006: Arica-Parinacota in the north, and Los Rios in the south. Both became operative in 2007-10.	http://purl.obolibrary.org/obo/GAZ_00002825
China	A large country in Northeast Asia. China borders 14 nations (counted clockwise from south): Vietnam, Laos, Burma, India, Bhutan, Nepal, Pakistan, Afghanistan, Tajikistan, Kyrgyzstan, Kazakhstan, Russia, Mongolia and North Korea. Additionally the border between PRC and ROC is located in territorial waters. The People's Republic of China has administrative control over twenty-two provinces and considers Taiwan to be its twenty-third province. There are also five autonomous regions, each with a designated minority group; four municipalities; and two Special Administrative Regions that enjoy considerable autonomy. The People's Republic of China administers 33 province-level regions, 333 prefecture-level regions, 2,862 county-level regions, 41,636 township-level regions, and several village-level regions.	http://purl.obolibrary.org/obo/GAZ_00002845

Colombia	A country located in the northwestern region of South America. Colombia is bordered to the east by Venezuela and Brazil; to the south by Ecuador and Peru; to the North by the Atlantic Ocean, through the Caribbean Sea; to the north-west by Panama; and to the west by the Pacific Ocean. Besides the countries in South America, the Republic of Colombia is recognized to share maritime borders with the Caribbean countries of Jamaica, Haiti, the Dominican Republic and the Central American countries of Honduras, Nicaragua, and Costa Rica. Colombia is divided into 32 departments and one capital district which is treated as a department. There are in total 10 districts assigned to cities in Colombia including Bogota, Barranquilla, Cartagena, Santa Marta, Tunja, Cucuta, Popayan, Buenaventura, Tumaco and Turbo. Colombia is also subdivided into some municipalities which form departments, each with a municipal seat capital city assigned. Colombia is also subdivided into corregimientos which form municipalities.	http://purl.obolibrary.org/obo/GAZ_00002929
Comoros	An island nation in the Indian Ocean, located off the eastern coast of Africa on the northern end of the Mozambique Channel between northern Madagascar and northeastern Mozambique.	http://purl.obolibrary.org/obo/GAZ_00005820
Cook Islands	A self-governing parliamentary democracy in free association with New Zealand. The fifteen small islands in this South Pacific Ocean country have a total land area of 240 km2, but the Cook Islands Exclusive Economic Zone (EEZ) covers 1.8 million km2 of ocean.	http://purl.obolibrary.org/obo/GAZ_00053798
Costa Rica	A republic in Central America, bordered by Nicaragua to the north, Panama to the east-southeast, the Pacific Ocean to the west and south, and the Caribbean Sea to the east. Costa Rica is composed of seven provinces, which in turn are divided into 81 cantons.	http://purl.obolibrary.org/obo/GAZ_00002901

Croatia	A country at the crossroads of the Mediterranean, Central Europe, and the Balkans. Its capital is Zagreb. Croatia borders with Slovenia and Hungary to the north, Serbia to the northeast, Bosnia and Herzegovina to the east, Montenegro to the far southeast, and the Adriatic Sea to the south. Croatia is divided into 21 counties (zupanija) and the capital Zagreb's city district.	http://purl.obolibrary.org/obo/GAZ_00002719
Cuba	A country that consists of the island of Cuba (the largest and second-most populous island of the Greater Antilles), Isla de la Juventud and several adjacent small islands. Fourteen provinces and one special municipality (the Isla de la Juventud) now compose Cuba.	http://purl.obolibrary.org/obo/GAZ_00003762
Curacao	One of five island areas of the Netherlands Antilles.	http://purl.obolibrary.org/obo/GAZ_00012582
Czech Republic	A landlocked country in Central Europe. It has borders with Poland to the north, Germany to the northwest and southwest, Austria to the south, and Slovakia to the east. The capital and largest city is Prague. The country is composed of the historic regions of Bohemia and Moravia, as well as parts of Silesia. Since 2000, the Czech Republic is divided into thirteen regions (kraje, singular kraj) and the capital city of Prague. The older seventy-six districts (okresy, singular okres) including three 'statutory cities' (without Prague, which had special status) were disbanded in 1999 in an administrative reform; they remain as territorial division and seats of various branches of state administration. Since 2003-01-01, the regions have been divided into around 203 Municipalities with Extended Competence (unofficially named "Little Districts" (Czech: 'male okresy') which took over most of the administration of the former District Authorities. Some of these are further divided into Municipalities with Commissioned Local Authority. However, the old districts still exist as territorial units and remain as seats of some of the offices.	http://purl.obolibrary.org/obo/GAZ_00002954

Democratic Republic of the Congo	A country of central Africa. It borders the Central African Republic and Sudan on the north, Uganda, Rwanda, and Burundi on the east, Zambia and Angola on the south, the Republic of the Congo on the west, and is separated from Tanzania by Lake Tanganyika on the east. The country enjoys access to the ocean through a 40 km stretch of Atlantic coastline at Muanda and the roughly 9 km wide mouth of the Congo river which opens into the Gulf of Guinea. Congo Kinshasa is now divided into 11 Provinces, to be redistributed into 25 Provinces from 2.2009. Each Province is divided into Zones.	http://purl.obolibrary.org/obo/GAZ_00001086
Denmark	A nation situated in Scandinavia in northern Europe (Metropolitan Denmark) plus its two autonomous provinces, Greenland and The Faroe Islands. Denmark is divided into five regions and a total of 98 municipalities, plus two autonomous provinces.	http://purl.obolibrary.org/obo/GAZ_00002635
Djibouti	A country in eastern Africa. Djibouti is bordered by Eritrea in the north, Ethiopia in the west and south, and Somalia in the southeast. The remainder of the border is formed by the Red Sea and the Gulf of Aden. On the other side of the Red Sea, on the Arabian Peninsula, 20 km from the coast of Djibouti, is Yemen. The capital of Djibouti is the city of Djibouti. Djibouti is divided into 5 regions and one city. It is further subdivided into 11 districts.	http://purl.obolibrary.org/obo/GAZ_00000582
Dominica	An island nation in the Caribbean Sea. Dominica is divided into ten parishes.	http://purl.obolibrary.org/obo/GAZ_00006890

Dominican Republic	A country in the West Indies that occupies the E two-thirds of the Hispaniola island. The Dominican Republic's shores are washed by the Atlantic Ocean to the north and the Caribbean Sea to the south. The Mona Passage, a channel about 130 km wide, separates the country (and the Hispaniola) from Puerto Rico. The Dominican Republic is divided into 31 provinces. Additionally, the national capital, Santo Domingo, is contained within its own Distrito Nacional (National District). The provinces are divided into municipalities (municipios; singular municipio).	http://purl.obolibrary.org/obo/GAZ_00003952
Ecuador	A country in South America, bordered by Colombia on the north, by Peru on the east and south, and by the Pacific Ocean to the west. The country also includes the Galapagos Islands (Archipelago de Colon) in the Pacific, about 965 km west of the mainland. Ecuador is divided into 24 provinces, divided into 199 cantons and subdivided into parishes (or parroquias).	http://purl.obolibrary.org/obo/GAZ_00002912
Egypt	A country in North Africa that includes the Sinai Peninsula, a land bridge to Asia. Egypt borders Libya to the west, Sudan to the south, and the Gaza Strip and Israel to the east. The northern coast borders the Mediterranean Sea and the island of Cyprus; the eastern coast borders the Red Sea. Egypt is divided into 26 governorates (in Arabic, called muhafazat, singular muhafazah). The governorates are further divided into regions (markazes).	http://purl.obolibrary.org/obo/GAZ_00003934
El Salvador	A country in Central America, bordering the Pacific Ocean between Guatemala and Honduras. El Salvador is divided into 14 departments (departamentos), which, in turn, are subdivided into 267 municipalities (municipios).	http://purl.obolibrary.org/obo/GAZ_00002935

England	The largest and most populous constituent country of the United Kingdom of Great Britain and Northern Ireland. The subdivisions of England consists of as many as four levels of subnational division and at some levels there are a variety of types of administrative entity. They have been created for the purposes of local government in England.	http://purl.obolibrary.org/obo/GAZ_00002641
Equatorial Guinea	A country in Central Africa. It is one of the smallest countries in continental Africa, and comprises two regions: Rio Muni, continental region including several offshore islands; and Insular Region containing Annobon island in the South Atlantic Ocean, and Bioko island (formerly Fernando Po) that contains the capital, Malabo. Equatorial Guinea is divided into seven provinces which are divided into districts.	http://purl.obolibrary.org/obo/GAZ_00001091
Eritrea	A country situated in northern East Africa. It is bordered by Sudan in the west, Ethiopia in the south, and Djibouti in the southeast. The east and northeast of the country have an extensive coastline on the Red Sea, directly across from Saudi Arabia and Yemen. The Dahlak Archipelago and several of the Hanish Islands are part of Eritrea. Eritrea is divided into six regions (zobas) and subdivided into districts ("sub-zobas").	http://purl.obolibrary.org/obo/GAZ_00000581

Estonia	A country in Northern Europe. Estonia has land borders to the south with Latvia and to the east with Russia. It is separated from Finland in the north by the Gulf of Finland and from Sweden in the west by the Baltic Sea. Estonia is divided into 15 counties. (maakonnad; sing. - maakond). Estonian counties are divided into rural (vallad, singular vald) and urban (linnad, singular linn; alevid, singular alev; alevikud, singular alevik) municipalities. The municipalities comprise populated places (asula or asustusuksus) - various settlements and territorial units that have no administrative function. A group of populated places form a rural municipality with local administration. Most towns constitute separate urban municipalities, while some have joined with surrounding rural municipalities.	http://purl.obolibrary.org/obo/GAZ_00002959
Ethiopia	A country situated in the Horn of Africa that has been landlocked since the independence of its northern neighbor Eritrea in 1993. Apart from Eritrea to the north, Ethiopia is bordered by Sudan to the west, Kenya to the south, Djibouti to the northeast, and Somalia to the east. Since 1996 Ethiopia has had a tiered government system consisting of a federal government overseeing ethnically-based regional states, zones, districts (woredas), and neighborhoods (kebele). It is divided into nine ethnically-based administrative states (kililoch, singular kilil) and subdivided into sixty-eight zones and two chartered cities (astedader akababiwoch, singular astedader akababi): Addis Ababa and Dire Dawa. It is further subdivided into 550 woredas and six special woredas.	http://purl.obolibrary.org/obo/GAZ_00000567
Fiji	An island nation in the South Pacific Ocean east of Vanuatu, west of Tonga and south of Tuvalu. The country occupies an archipelago of about 322 islands, of which 106 are permanently inhabited, and 522 islets. The two major islands, Viti Levu and Vanua Levu, account for 87% of the population.	http://purl.obolibrary.org/obo/GAZ_00006891

Finland	A Nordic country situated in the Fennoscandian region of Northern Europe. It has borders with Sweden to the west, Russia to the east, and Norway to the north, while Estonia lies to its south across the Gulf of Finland. The capital city is Helsinki. Finland is divided into six administrative provinces (laani, plural laanit). These are divided into 20 regions (maakunt), 77 subregions (seutukunta) and then into municipalities (kunta).	http://purl.obolibrary.org/obo/GAZ_00002937
Gabon	A country in west central Africa sharing borders with Equatorial Guinea, Cameroon, Republic of the Congo and the Gulf of Guinea. The capital and largest city is Libreville. Gabon is divided into 9 provinces and further divided into 37 departments.	http://purl.obolibrary.org/obo/GAZ_00001092
Gambia	A country in Western Africa. It is the smallest country on the African continental mainland and is bordered to the north, east, and south by Senegal, and has a small coast on the Atlantic Ocean in the west. Flowing through the centre of the country and discharging to the Atlantic Ocean is the Gambia River. The Gambia is divided into five divisions and one city (Banjul). The divisions are further subdivided into 37 districts.	http://purl.obolibrary.org/obo/GAZ_00000907

Georgia	A Eurasian country in the Caucasus located at the east coast of the Black Sea. In the north, Georgia has a 723 km common border with Russia, specifically with the Northern Caucasus federal district. The following Russian republics/subdivisions: from west to east: border Georgia: Krasnodar Krai, Karachay-Cherkessia, Kabardino-Balkaria, North Ossetia-Alania, Ingushetia, Chechnya, Dagestan. Georgia also shares borders with Azerbaijan (322 km) to the south-east, Armenia (164 km) to the south, and Turkey (252 km) to the south-west. It is a transcontinental country, located at the juncture of Eastern Europe and Western Asia. Georgia is divided into 9 regions, 2 autonomous republics (avtonomiuri respublika), and 1 city (k'alak'i). The regions are further subdivided into 69 districts (raioni).	http://purl.obolibrary.org/obo/GAZ_00004942
Germany	A country in Central Europe. It is bordered to the north by the North Sea, Denmark, and the Baltic Sea; to the east by Poland and the Czech Republic; to the south by Austria and Switzerland; and to the west by France, Luxembourg, Belgium, and the Netherlands. Germany comprises 16 states (Lander, Bundeslander), which are further subdivided into 439 districts (Kreise/Landkreise) and cities (kreisfreie Stadte).	http://purl.obolibrary.org/obo/GAZ_00002646
Ghana	A country in West Africa. It borders Cote d'Ivoire to the west, Burkina Faso to the north, Togo to the east, and the Gulf of Guinea to the south. Ghana is a divided into 10 regions, subdivided into a total of 138 districts.	http://purl.obolibrary.org/obo/GAZ_00000908

Greece	A country in southeastern Europe, situated on the southern end of the Balkan Peninsula. It has borders with Albania, the former Yugoslav Republic of Macedonia and Bulgaria to the north, and Turkey to the east. The Aegean Sea lies to the east and south of mainland Greece, while the Ionian Sea lies to the west. Both parts of the Eastern Mediterranean basin feature a vast number of islands. Greece consists of thirteen peripheries subdivided into a total of fifty-one prefectures (nomoi, singular nomos). There is also one autonomous area, Mount Athos, which borders the periphery of Central Macedonia.	http://purl.obolibrary.org/obo/GAZ_00002945
Greenland	A self-governing Danish province located between the Arctic and Atlantic Oceans, east of the Canadian Arctic Archipelago.	http://purl.obolibrary.org/obo/GAZ_00001507
Grenada	Grenada	http://purl.obolibrary.org/obo/GAZ_02000573
Guam	An island which is the southernmost island in the Mariana island chain and is the largest island in Micronesia.	http://purl.obolibrary.org/obo/GAZ_00006933
Guatemala	A country in Central America bordered by Mexico to the northwest, the Pacific Ocean to the southwest, Belize and the Caribbean Sea to the northeast, and Honduras and El Salvador to the southeast. Guatemala is divided into 22 departments (departamentos) and sub-divided into about 332 municipalities (municipios).	http://purl.obolibrary.org/obo/GAZ_00002936
Guinea	A nation in West Africa, formerly known as French Guinea. Guinea's territory has a curved shape, with its base at the Atlantic Ocean, inland to the east, and turning south. The base borders Guinea-Bissau and Senegal to the north, and Mali to the north and north-east; the inland part borders Cote d'Ivoire to the south-east, Liberia to the south, and Sierra Leone to the west of the southern tip.	http://purl.obolibrary.org/obo/GAZ_00000909

Guinea-Bissau	A country in western Africa, and one of the smallest nations in continental Africa. It is bordered by Senegal to the north, and Guinea to the south and east, with the Atlantic Ocean to its west. Formerly the Portuguese colony of Portuguese Guinea, upon independence, the name of its capital, Bissau, was added to the country's name in order to prevent confusion between itself and the Republic of Guinea.	http://purl.obolibrary.org/obo/GAZ_00000910
Guyana	A country in the N of South America. Guyana lies north of the equator, in the tropics, and is located on the Atlantic Ocean. Guyana is bordered to the east by Suriname, to the south and southwest by Brazil and to the west by Venezuela. Guyana is divided into 10 regions. The regions of Guyana are divided into 27 neighborhood councils.	http://purl.obolibrary.org/obo/GAZ_00002522
Haiti	A country located in the Greater Antilles archipelago on the Caribbean island of Hispaniola, which it shares with the Dominican Republic. Haiti is divided into 10 departments. The departments are further divided into 41 arrondissements, and 133 communes which serve as second and third level administrative divisions.	http://purl.obolibrary.org/obo/GAZ_00003953
Honduras	A republic in Central America. The country is bordered to the west by Guatemala, to the southwest by El Salvador, to the southeast by Nicaragua, to the south by the Pacific Ocean at the Gulf of Fonseca, and to the north by the Gulf of Honduras, a large inlet of the Caribbean Sea. Honduras is divided into 18 departments. The capital city is Tegucigalpa Central District of the department of Francisco Morazan.	http://purl.obolibrary.org/obo/GAZ_00002894

Hungary	A landlocked country in the Carpathian Basin of Central Europe, bordered by Austria, Slovakia, Ukraine, Romania, Serbia, Croatia, and Slovenia. Its capital is Budapest. Hungary is divided into 19 counties (megyek, singular: megye). In addition, the capital city (fovaros), Budapest, is independent of any county government. The counties are further subdivided into 173 subregions (kistersegek), and Budapest is comprised of its own subregion. Since 1996, the counties and City of Budapest have been grouped into 7 regions for statistical and development purposes. These seven regions constitute NUTS second-level units of Hungary.	http://purl.obolibrary.org/obo/GAZ_00002952
Iceland	A country in northern Europe, comprising the island of Iceland and its outlying islands in the North Atlantic Ocean between the rest of Europe and Greenland.	http://purl.obolibrary.org/obo/GAZ_00000843
India	A country in South Asia. Bounded by the Indian Ocean on the south, the Arabian Sea on the west, and the Bay of Bengal on the east, India has a coastline of 7,517 km. It borders Pakistan to the west; China, Nepal, and Bhutan to the north-east; and Bangladesh and Burma to the east. India is in the vicinity of Sri Lanka, the Maldives, and Indonesia in the Indian Ocean. India is a federal republic of twenty-eight states and seven Union Territories. Each state or union territory is divided into basic units of government and administration called districts. There are nearly 600 districts in India. The districts in turn are further divided into tehsils and eventually into villages.	http://purl.obolibrary.org/obo/GAZ_00002839

Indonesia	An archipelagic state in Southeast Asia. The country shares land borders with Papua New Guinea, East Timor and Malaysia. Other neighboring countries include Singapore, the Philippines, Australia, and the Indian territory of the Andaman and Nicobar Islands. Indonesia consists of 33 provinces, five of which have special status. The provinces are subdivided into regencies (kabupaten, distrik in Papua and West Papua Provinces) and cities (kota), which are further subdivided into subdistricts (kecamatan), and again into village groupings (either desa or kelurahan).	http://purl.obolibrary.org/obo/GAZ_00003727
Iran	A country in Central Eurasia. Iran is bounded by the Gulf of Oman and the Persian Gulf to the south and the Caspian Sea to its north. It borders Armenia, Azerbaijan, Turkmenistan to the north, Afghanistan and Pakistan to the east, and Turkey and Iraq to the west. Iran is divided into 30 provinces (ostan). The provinces are divided into counties (shahrestan), and subdivided into districts (bakhsh) and sub-districts (dehestan).	http://purl.obolibrary.org/obo/GAZ_00004474
Iraq	A country in the Middle East spanning most of the northwestern end of the Zagros mountain range, the eastern part of the Syrian Desert and the northern part of the Arabian Desert. It shares borders with Kuwait and Saudi Arabia to the south, Jordan to the west, Syria to the northwest, Turkey to the north, and Iran to the east. It has a very narrow section of coastline at Umm Qasr on the Persian Gulf. There are two major flowing rivers: the Tigris and the Euphrates. Iraq is divided into 18 governorates (or provinces) (muhafazah). The governorates are divided into qadhas (or districts).	http://purl.obolibrary.org/obo/GAZ_00004483

Israel	A country in Western Asia located on the eastern edge of the Mediterranean Sea. It borders Lebanon in the north, Syria in the northeast, Jordan in the east, and Egypt on the southwest. The West Bank and Gaza Strip, which are partially administrated by the Palestinian National Authority, are also adjacent. The State of Israel is divided into six main administrative districts, known as mehozot (singular mahoz). Districts are further divided into fifteen sub-districts known as nafot (singular: nafa), which are themselves partitioned into fifty natural regions.	http://purl.obolibrary.org/obo/GAZ_00002476
Italy	A country located on the Italian Peninsula in Southern Europe, and on the two largest islands in the Mediterranean Sea, Sicily and Sardinia. Italy shares its northern Alpine boundary with France, Switzerland, Austria and Slovenia. The independent states of San Marino and the Vatican City are enclaves within the Italian Peninsula, while Campione d'Italia is an Italian exclave in Switzerland. Italy is subdivided into 20 regions (regioni, singular regione). Five of these regions have a special autonomous status that enables them to enact legislation on some of their local matters. It is further divided into 109 provinces (province) and 8,101 municipalities (comuni).	http://purl.obolibrary.org/obo/GAZ_00002650
Ivory Coast	A country in West Africa. It borders Liberia and Guinea to the west, Mali and Burkina Faso to the north, Ghana to the east, and the Gulf of Guinea to the south. Cote d'Ivoire is divided into nineteen regions (regions). The regions are further divided into 58 departments.	http://purl.obolibrary.org/obo/GAZ_00000906
Jamaica	A nation of the Greater Antilles. Jamaica is divided into 14 parishes, which are grouped into three historic counties that have no administrative relevance.	http://purl.obolibrary.org/obo/GAZ_00003781
Japan	An island country in East Asia. Located in the Pacific Ocean, it lies to the east of China, Korea and Russia, stretching from the Sea of Okhotsk in the north to the East China Sea in the south.	http://purl.obolibrary.org/obo/GAZ_00002747

Java	An island of Indonesia and the site of its capital city, Jakarta. It lies between Sumatra to the northwest and Bali to the east. Borneo lies to the north and Christmas Island to the south. Java is almost entirely of volcanic origin; it contains no fewer than thirty-eight mountains forming an east-west spine which have at one time or another been active volcanoes.	http://purl.obolibrary.org/obo/GAZ_00024383
Jordan	A country in Southwest Asia, bordered by Syria to the north, Iraq to the north-east, Israel and the West Bank to the west, and Saudi Arabia to the east and south. It shares the coastlines of the Dead Sea, and the Gulf of Aqaba with Israel, Saudi Arabia, and Egypt. Jordan is divided into 12 provinces called governorates. The Governorates are subdivided into approximately fifty-two nahias.	http://purl.obolibrary.org/obo/GAZ_00002473
Kazakhstan	A country in Central Asia and Europe. It is bordered by Russia, Kyrgyzstan, Turkmenistan, Uzbekistan and China. The country also borders on a significant part of the Caspian Sea. Kazakhstan is divided into 14 provinces and two municipal districts. The provinces of Kazakhstan are divided into raions.	http://purl.obolibrary.org/obo/GAZ_00004999
Kenya	A country in Eastern Africa. It is bordered by Ethiopia to the north, Somalia to the east, Tanzania to the south, Uganda to the west, and Sudan to the northwest, with the Indian Ocean running along the southeast border. Kenya comprises eight provinces each headed by a Provincial Commissioner (centrally appointed by the president). The provinces (mkoa singular mikoa plural in Swahili) are subdivided into districts (wilaya). There were 69 districts as of 1999 census. Districts are then subdivided into 497 divisions (taarafa). The divisions are then subdivided into 2,427 locations (kata) and then 6,612 sublocations (kata ndogo). The City of Nairobi enjoys the status of a full administrative province.	http://purl.obolibrary.org/obo/GAZ_00001101

Kiribati	An island nation located in the central tropical Pacific Ocean. It is composed of 32 atolls and one raised coral island dispersed over 3,500,000 km2 straddling the equator and bordering the International Date Line to the east. It is divided into three island groups which have no administrative function, including a group which unites the Line Islands and the Phoenix Islands (ministry at London, Christmas). Each inhabited island has its own council (three councils on Tarawa: Betio, South-Tarawa, North-Tarawa; two councils on Tabiteuea).	http://purl.obolibrary.org/obo/GAZ_00006894
Kosovo	A country on the Balkan Peninsula. Kosovo borders Central Serbia to the north and east, Montenegro to the northwest, Albania to the west and the Republic of Macedonia to the south. Kosovo is divided into 7 districts (Rreth) and 30 municipalities. Serbia does not recognise the unilateral secession of Kosovo[8] and considers it a United Nations-governed entity within its sovereign territory, the Autonomous Province of Kosovo and Metohija.	http://purl.obolibrary.org/obo/GAZ_00011337
Kurdistan	An extensive plateau and mountainous area in the Middle East, inhabited mainly by Kurds. It covers large parts of eastern Turkey, northern Iraq, northwestern Iran and smaller parts of northern Syria and Armenia. It roughly includes Zagros and eastern Taurus mountain ranges.	http://purl.obolibrary.org/obo/GAZ_00002468
Kuwait	A sovereign emirate on the coast of the Persian Gulf, enclosed by Saudi Arabia to the south and Iraq to the north and west. Kuwait is divided into six governorates (muhafazat, singular muhafadhah).	http://purl.obolibrary.org/obo/GAZ_00005285

Kyrgyzstan	A country in Central Asia. Landlocked and mountainous, it is bordered by Kazakhstan to the north, Uzbekistan to the west, Tajikistan to the southwest and China to the east. Kyrgyzstan is divided into seven provinces (oblast. The capital, Bishkek, and the second large city Osh are administratively the independent cities (shaar) with a status equal to a province. Each province comprises a number of districts (raions).	http://purl.obolibrary.org/obo/GAZ_00006893
Laos	A landlocked country in southeast Asia, bordered by Burma (Myanmar) and China to the northwest, Vietnam to the east, Cambodia to the south, and Thailand to the west. Laos is divided into sixteen provinces (qwang) and Vientiane Capital (Na Kone Luang Vientiane). The provinces further divided into districts (muang).	http://purl.obolibrary.org/obo/GAZ_00006889
Latvia	A country in Northern Europe. Latvia shares land borders with Estonia to the north and Lithuania to the south, and both Russia and Belarus to the east. It is separated from Sweden in the west by the Baltic Sea. The capital of Latvia is Riga. Latvia is divided into 26 districts (raioni). There are also seven cities (lielpilsetas) that have a separate status. Latvia is also historically, culturally and constitutionally divided in four or more distinct regions.	http://purl.obolibrary.org/obo/GAZ_00002958
Lebanon	A small, mostly mountainous country in Western Asia, on the eastern shore of the Mediterranean Sea. It is bordered by Syria to the north and east, and Israel to the south. Lebanon is divided into six governorates (mohaafazaat, which are further subdivided into twenty-five districts (aqdya, singular: qadaa).	http://purl.obolibrary.org/obo/GAZ_00002478
Lesotho	A land-locked country, entirely surrounded by the Republic of South Africa. Lesotho is divided into ten districts; these are further subdivided into 80 constituencies, which consists of 129 local community councils.	http://purl.obolibrary.org/obo/GAZ_00001098
Liberia	A country on the west coast of Africa, bordered by Sierra Leone, Guinea, Cote d'Ivoire, and the Atlantic Ocean.	http://purl.obolibrary.org/obo/GAZ_00000911

Libya	A country in North Africa. Bordering the Mediterranean Sea to the north, Libya lies between Egypt to the east, Sudan to the southeast, Chad and Niger to the south, and Algeria and Tunisia to the west. There are thirty-four municipalities of Libya, known by the Arabic term sha'biyat (singular sha'biyah). These came recently (in the 1990s to replaced old Baladiyat systam. The Baladiyat system in turn was introduced to replace the system of muhafazah (governorates or provinces) that existed from the 1960s to the 1970s.	http://purl.obolibrary.org/obo/GAZ_00000566
Liechtenstein	A tiny, doubly landlocked alpine country in Western Europe, bordered by Switzerland to its west and by Austria to its east. The principality of Liechtenstein is divided into 11 municipalities called Gemeinden (singular Gemeinde). The Gemeinden mostly consist only of a single town. Five of them fall within the electoral district Unterland (the lower county), and the remainder within Oberland (the upper county).	http://purl.obolibrary.org/obo/GAZ_00003858
Lithuania	A country located along the south-eastern shore of the Baltic Sea, sharing borders with Latvia to the north, Belarus to the southeast, Poland, and the Russian exclave of the Kaliningrad Oblast to the southwest. Lithuania has a three-tier administrative division: the country is divided into 10 counties (singular apskritis, plural, apskritys) that are further subdivided into 60 municipalities (singular savivaldybe, plural savivaldybes) which consist of over 500 elderates (singular seniunija, plural seniunijos).	http://purl.obolibrary.org/obo/GAZ_00002960
Luxembourg	A small landlocked country in western Europe, bordered by Belgium, France, and Germany. Luxembourg is divided into 3 districts, which are further divided into 12 cantons and then 116 communes. Twelve of the communes have city status, of which the city of Luxembourg is the largest.	http://purl.obolibrary.org/obo/GAZ_00002947

Macedonia	A landlocked country on the Balkan peninsula in southeastern Europe. It is bordered by Serbia and Kosovo to the north, Albania to the west, Greece to the south, and Bulgaria to the east. In 2004-08, the Republic of Macedonia was reorganised into 85 municipalities (opstini; singular opstina), 10 of which comprise Greater Skopje. This is reduced from the previous 123 municipalities established in 1996-09. Prior to this, local government was organised into 34 administrative districts.	http://purl.obolibrary.org/obo/GAZ_00006895
Malawi	A country in southeastern Africa. It is bordered by Zambia to the north-west, Tanzania to the north and Mozambique, which surrounds it on the east, south and west. Malawi is divided into three regions (the Northern, Central and Southern regions), which are further divided into twenty-seven districts, which in turn are further divided into 137 traditional authorities and 68 sub-chiefdoms.	http://purl.obolibrary.org/obo/GAZ_00001105
Malaysia	A country that consists of thirteen states and three federal territories in Southeast Asia. The country is separated into two regions, Peninsular Malaysia and Malaysian Borneo, by the South China Sea. Malaysia borders Thailand, Indonesia, Singapore, Brunei and the Philippines. Malaysia consists of 13 states (Negeri) and 3 federal territories.	http://purl.obolibrary.org/obo/GAZ_00003902
Mali	A landlocked country in northern Africa. It borders Algeria on the north, Niger on the east, Burkina Faso and the Cote d'Ivoire on the south, Guinea on the south-west, and Senegal and Mauritania on the west. Mali is divided into 8 regions (regions) and 1 district, and subdivided into 49 cercles, totalling 288 arrondissements.	http://purl.obolibrary.org/obo/GAZ_00000584

Mauritania	A country in North-West Africa. It is bordered by the Atlantic Ocean on the west, by Senegal on the southwest, by Mali on the east and southeast, by Algeria on the northeast, and by Western Sahara on the northwest (most of which is occupied by Morocco). The capital and largest city is Nouakchott, located on the Atlantic coast. Mauritania is divided into 12 regions (regions) and one capital district, which in turn are subdivided into 44 departments (departements).	http://purl.obolibrary.org/obo/GAZ_00000583
Metropolitan Denmark	That part of the Kingdom of Denmark located in continental Europe. The mainland is bordered to the south by Germany; Denmark is located to the southwest of Sweden and the south of Norway. Denmark borders both the Baltic and the North Sea. The country consists of a large peninsula, Jutland (Jylland) and a large number of islands, most notably Zealand (Sjaelland), Funen (Fyn), Vendsyssel-Thy, Lolland, Falster and Bornholm as well as hundreds of minor islands often referred to as the Danish Archipelago.	http://purl.obolibrary.org/obo/GAZ_00005852
Metropolitan France	A part of the country of France that extends from the Mediterranean Sea to the English Channel and the North Sea, and from the Rhine to the Atlantic Ocean. Metropolitan France is bordered by Belgium, Luxembourg, Germany, Switzerland, Italy, Monaco, Andorra, and Spain. Due to its overseas departments.	http://purl.obolibrary.org/obo/GAZ_00003940
Metropolitan Norway	That part of the Kingdom of Norway that occupies the W part of the Scandinavian Peninusula and adjoining islands. Metropolitan Norway is divided into nineteen first-level administrative regions known as fylker ("counties", singular fylke) and 430[19] second-level kommuner ("municipalities", singular kommune).	http://purl.obolibrary.org/obo/GAZ_00005851
Metropolitan Portugal	That part of the Portugese Republic that occupies the W part of the Iberian Peninsula, and immediately adjacent islands.	http://purl.obolibrary.org/obo/GAZ_00004126

Metropolitan Spain	That part of the Kingdom of Spain that occupies the Iberian Peninsula plus the Balaeric Islands. The Spanish mainland is bordered to the south and east almost entirely by the Mediterranean Sea (except for a small land boundary with Gibraltar); to the north by France, Andorra, and the Bay of Biscay; and to the west by the Atlantic Ocean and Portugal.	http://purl.obolibrary.org/obo/GAZ_00003936
Mexico	A federal constitutional republic in North America. It is bounded on the north by the United States; on the south and west by the North Pacific Ocean; on the southeast by Guatemala, Belize, and the Caribbean Sea; and on the east by the Gulf of Mexico. The United Mexican States comprise a federation of thirty-one states and a federal district, the capital Mexico City.	http://purl.obolibrary.org/obo/GAZ_00002852
Moldova	A landlocked country in Eastern Europe, located between Romania to the west and Ukraine to the north, east and south. Moldova is divided into thirty-two districts (raioane, singular raion); three municipalities (Balti, Chisinau, Tighina); and two autonomous regions (Gagauzia and Transnistria). The cities of Comrat and Tiraspol also have municipality status, however not as first-tier subdivisions of Moldova, but as parts of the regions of Gagauzia and Transnistria, respectively. The status of Transnistria is however under dispute. Although it is de jure part of Moldova and is recognized as such by the international community, Transnistria is not de facto under the control of the central government of Moldova. It is administered by an unrecognized breakaway authority under the name Pridnestrovian Moldovan Republic.	http://purl.obolibrary.org/obo/GAZ_00003897
Monaco	A small country that is completely bordered by France to the north, west, and south; to the east it is bordered by the Mediterranean Sea. It consists of a single municipality (commune) currently divided into 4 quartiers and 10 wards.	http://purl.obolibrary.org/obo/GAZ_00003857

Mongolia	A country in East-Central Asia. The landlocked country borders Russia to the north and China to the south. The capital and largest city is Ulan Bator. Mongolia is divided into 21 aimags (provinces), which are in turn divided into 315 sums (districts). The capital Ulan Bator is administrated separately as a khot (municipality) with provincial status.	http://purl.obolibrary.org/obo/GAZ_00008744
Montenegro	A country located in Southeastern Europe. It has a coast on the Adriatic Sea to the south and borders Croatia to the west, Bosnia and Herzegovina to the northwest, Serbia and its partially recognized breakaway southern province of Kosovo to the northeast and Albania to the southeast. Its capital and largest city is Podgorica. Montenegro is divided into twenty-one municipalities (opstina), and two urban municipalities, subdivisions of Podgorica municipality.	http://purl.obolibrary.org/obo/GAZ_00006898
Montserrat	A British overseas territory located in the Leeward Islands. Montserrat is divided into three parishes.	http://purl.obolibrary.org/obo/GAZ_00003988
Morocco	A country in North Africa. It has a coast on the Atlantic Ocean that reaches past the Strait of Gibraltar into the Mediterranean Sea. Morocco has international borders with Algeria to the east, Spain to the north (a water border through the Strait and land borders with two small Spanish autonomous cities, Ceuta and Melilla), and Mauritania to the south. Morocco is divided into 16 regions, and subdivided into 62 prefectures and provinces. Because of the conflict over Western Sahara, the status of both regions of "Saguia el-Hamra" and "Rio de Oro" is disputed.	http://purl.obolibrary.org/obo/GAZ_00000565

Mozambique	A country in southeastern Africa bordered by the Indian Ocean to the east, Tanzania to the north, Malawi and Zambia to the northwest, Zimbabwe to the west and Swaziland and South Africa to the southwest. Mozambique is divided into ten provinces (provincias) and one capital city (cidade capital) with provincial status. The provinces are subdivided into 129 districts (distritos). Districts are further divided in "Postos Administrativos" (Administrative Posts) and these in Localidades (Localities) the lowest geographical level of central state administration.	http://purl.obolibrary.org/obo/GAZ_00001100
Myanmar	A country in SE Asia that is bordered by China on the north, Laos on the east, Thailand on the southeast, Bangladesh on the west, and India on the northwest, with the Bay of Bengal to the southwest. Myanmar is divided into seven states and seven divisions. The administrative divisions are further subdivided into districts, which are further subdivided into townships, wards, and villages.	http://purl.obolibrary.org/obo/GAZ_00006899
Namibia	A country in southern Africa on the Atlantic coast. It shares borders with Angola and Zambia to the north, Botswana to the east, and South Africa to the south. Namibia is divided into 13 regions and subdivided into 102 constituencies.	http://purl.obolibrary.org/obo/GAZ_00001096
Nauru	An island nation in the Micronesian South Pacific. The nearest neighbour is Banaba Island in the Republic of Kiribati, 300 km due east. Nauru is divided into fourteen administrative districts which are grouped into eight electoral constituencies.	http://purl.obolibrary.org/obo/GAZ_00006900

Nepal	A landlocked nation in South Asia. It is bordered by the Tibet Autonomous Region of the People's Republic of China to the northeast and India to the south and west; it is separated from Bhutan by the Indian State of Sikkim and from Bangladesh by a small strip of the Indian State of West Bengal, known as the "Chicken's Neck". The Himalaya mountain range runs across Nepal's north and western parts, and eight of the world's ten highest mountains, including the highest, Mount Everest are situated within its territory. Nepal is divided into 14 zones and 75 districts, grouped into 5 development regions.	http://purl.obolibrary.org/obo/GAZ_00004399
Netherlands	The European part of the Kingdom of the Netherlands. It is bordered by the North Sea to the north and west, Belgium to the south, and Germany to the east. The Netherlands is divided into twelve administrative regions, called provinces. All provinces of the Netherlands are divided into municipalities (gemeenten), together 443 (2007).	http://purl.obolibrary.org/obo/GAZ_00002946
New Zealand	A nation in the south-western Pacific Ocean comprising two large islands (the North Island and the South Island) and numerous smaller islands, most notably Stewart Island/Rakiura and the Chatham Islands.	http://purl.obolibrary.org/obo/GAZ_00000469

Nicaragua	A republic in Central America. It is also the least densely populated with a demographic similar in size to its smaller neighbors. The country is bordered by Honduras to the north and by Costa Rica to the south. The Pacific Ocean lies to the west of the country, while the Caribbean Sea lies to the east. For administrative purposes it is divided into 15 departments (departamentos) and two self-governing regions (autonomous communities) based on the Spanish model. The departments are then subdivided into 153 municipios (municipalities). The two autonomous regions are Region Autonoma del Atlantico Norte and Region Autonoma del Atlantico Sur, often referred to as RAAN and RAAS, respectively. Until they were granted autonomy in 1985 they formed the single department of Zelaya.	http://purl.obolibrary.org/obo/GAZ_00002978
Niger	A landlocked country in Western Africa, named after the Niger River. It borders Nigeria and Benin to the south, Burkina Faso and Mali to the west, Algeria and Libya to the north and Chad to the east. The capital city is Niamey. Niger is divided into 7 departments and one capital district. The departments are subdivided into 36 arrondissements and further subdivided into 129 communes.	http://purl.obolibrary.org/obo/GAZ_00000585
Nigeria	A federal constitutional republic comprising thirty-six states and one Federal Capital Territory. The country is located in West Africa and shares land borders with the Republic of Benin in the west, Chad and Cameroon in the east, and Niger in the north. Its coast lies on the Gulf of Guinea, part of the Atlantic Ocean, in the south. The capital city is Abuja. Nigeria is divided into thirty-six states and one Federal Capital Territory, which are further sub-divided into 774 Local Government Areas (LGAs).	http://purl.obolibrary.org/obo/GAZ_00000912
Niue Fekai	An island nation located in the South Pacific Ocean. Although self-governing, Niue is in free association with New Zealand, meaning that the Sovereign in Right of New Zealand is also Niue's head of state.	http://purl.obolibrary.org/obo/GAZ_00006902

North America	North America	http://purl.obolibrary.org/obo/GAZ_00000458
North Korea	A state in East Asia in the northern half of the Korean Peninsula, with its capital in the city of Pyongyang. To the south and separated by the Korean Demilitarized Zone is South Korea, with which it formed one nation until division following World War II. At its northern Amnok River border are China and, separated by the Tumen River in the extreme north-east, Russia.	http://purl.obolibrary.org/obo/GAZ_00002801
Northern Ireland	One of the four countries of the United Kingdom. Situated in the north-east of the island of Ireland, it shares a border with the Republic of Ireland to the south and west.	http://purl.obolibrary.org/obo/GAZ_00002638
Northern Mariana Islands	A group of 15 islands about three-quarters of the way from Hawaii to the Philippines.	http://purl.obolibrary.org/obo/GAZ_00003958
Norway	A country and constitutional monarchy in Northern Europe that occupies the western portion of the Scandinavian Peninsula. It is bordered by Sweden, Finland, and Russia. The Kingdom of Norway also includes the Arctic island territories of Svalbard and Jan Mayen. Norwegian sovereignty over Svalbard is based upon the Svalbard Treaty, but that treaty does not apply to Jan Mayen. Bouvet Island in the South Atlantic Ocean and Peter I Island and Queen Maud Land in Antarctica are external dependencies, but those three entities do not form part of the kingdom.	http://purl.obolibrary.org/obo/GAZ_00002699

Oman	A country in southwest Asia, on the southeast coast of the Arabian Peninsula. It borders the United Arab Emirates on the northwest, Saudi Arabia on the west, and Yemen on the southwest. The coast is formed by the Arabian Sea on the south and east, and the Gulf of Oman on the northeast. The country also contains Madha, an exclave enclosed by the United Arab Emirates, and Musandam, an exclave also separated by Emirati territory. Oman is divided into four governorates (muhafazah) and five regions (mintaqat). The regions are subdivided into provinces (wilayat).	http://purl.obolibrary.org/obo/GAZ_00005283
Other	Other	Other
Pakistan	A country in Middle East which lies on the Iranian Plateau and some parts of South Asia. It is located in the region where South Asia converges with Central Asia and the Middle East. It has a 1,046 km coastline along the Arabian Sea in the south, and is bordered by Afghanistan and Iran in the west, India in the east and China in the far northeast. Pakistan is subdivided into four provinces and two territories. In addition, the portion of Kashmir that is administered by the Pakistani government is divided into two separate administrative units. The provinces are divided into a total of 105 zillas (districts). A zilla is further subdivided into tehsils (roughly equivalent to counties). Tehsils may contain villages or municipalities. There are over five thousand local governments in Pakistan.	http://purl.obolibrary.org/obo/GAZ_00005246
Palau	A nation that consists of eight principal islands and more than 250 smaller ones lying roughly 500 miles southeast of the Philippines.	http://purl.obolibrary.org/obo/GAZ_00006905
Palestinian Territories	The territory under the administration of the Palestine National Authority, as established by the Oslo Accords. The PNA divides the Palestinian territories into 16 governorates.	http://purl.obolibrary.org/obo/GAZ_00002475

Panama	The southernmost country of Central America. Situated on an isthmus, some categorize it as a transcontinental nation connecting the north and south part of America. It borders Costa Rica to the north-west, Colombia to the south-east, the Caribbean Sea to the north and the Pacific Ocean to the south. Panama's major divisions are nine provinces and five indigenous territories (comarcas indigenas). The provincial borders have not changed since they were determined at independence in 1903. The provinces are divided into districts, which in turn are subdivided into sections called corregimientos. Configurations of the corregimientos are changed periodically to accommodate population changes as revealed in the census reports.	http://purl.obolibrary.org/obo/GAZ_00002892
Papua New Guinea	Papua New Guinea	http://purl.obolibrary.org/obo/GAZ_00003922
Paraguay	A landlocked country in South America. It lies on both banks of the Paraguay River, bordering Argentina to the south and southwest, Brazil to the east and northeast, and Bolivia to the northwest, and is located in the very heart of South America. Paraguay consists of seventeen departments and one capital district (distrito capital). Each department is divided into districts.	http://purl.obolibrary.org/obo/GAZ_00002933

Peru	A country in western South America. It is bordered on the north by Ecuador and Colombia, on the east by Brazil, on the southeast by Bolivia, on the south by Chile, and on the west by the Pacific Ocean. Peru is divided into 25 regions and the province of Lima. These regions are subdivided into provinces, which are composed of districts (provincias and distritos). There are 195 provinces and 1833 districts in Peru. The Lima Province, located in the central coast of the country, is unique in that it doesn't belong to any of the twenty-five regions. The city of Lima, which is the nation's capital, is located in this province. Callao is its own region, even though it only contains one province, the Constitutional Province of Callao.	http://purl.obolibrary.org/obo/GAZ_00002932
Philippines	An archipelagic nation located in Southeast Asia. The Philippine archipelago comprises 7,107 islands in the western Pacific Ocean, bordering countries such as Indonesia, Malaysia, Palau and the Republic of China, although it is the only Southeast Asian country to share no land borders with its neighbors. The Philippines is divided into three island groups: Luzon, Visayas, and Mindanao. These are divided into 17 regions, 81 provinces, 136 cities, 1,494 municipalities and 41,995 barangays.	http://purl.obolibrary.org/obo/GAZ_00004525
Poland	A country in Central Europe. Poland is bordered by Germany to the west; the Czech Republic and Slovakia to the south; Ukraine, Belarus and Lithuania to the east; and the Baltic Sea and Kaliningrad Oblast, a Russian exclave, to the north. The administrative division of Poland since 1999 has been based on three levels of subdivision. The territory of Poland is divided into voivodeships (provinces); these are further divided into powiats (counties), and these in turn are divided into gminas (communes or municipalities). Major cities normally have the status of both gmina and powiat. Poland currently has 16 voivodeships, 379 powiats (including 65 cities with powiat status), and 2,478 gminas.	http://purl.obolibrary.org/obo/GAZ_00002939

Puerto Rico	An island in the Caribbean Sea.	http://purl.obolibrary.org/obo/GAZ_00002822
Qatar	An Arab emirate in Southwest Asia, occupying the small Qatar Peninsula on the northeasterly coast of the larger Arabian Peninsula. It is bordered by Saudi Arabia to the south; otherwise the Persian Gulf surrounds the state. Qatar is divided into ten municipalities (Arabic: baladiyah), which are further divided into zones (districts).	http://purl.obolibrary.org/obo/GAZ_00005286
Republic of Congo	A country in Central Africa. It is bordered by Gabon, Cameroon, the Central African Republic, the Democratic Republic of the Congo, the Angolan exclave province of Cabinda, and the Gulf of Guinea. The Republic of the Congo is divided into 10 regions (regions) and one commune, the capital Brazzaville. The regions are subdivided into forty-six districts.	http://purl.obolibrary.org/obo/GAZ_00001088
Republic of Ireland	A country in north-western Europe. The modern sovereign state occupies five-sixths of the island of Ireland, which was partitioned in 1921. It is bordered by Northern Ireland (part of the United Kingdom) to the north, by the Atlantic Ocean to the west and by the Irish Sea to the east. Administration follows the 34 "county-level" counties and cities of Ireland. Of these twenty-nine are counties, governed by county councils while the five cities of Dublin, Cork, Limerick, Galway and Waterford have city councils, (previously known as corporations), and are administered separately from the counties bearing those names. The City of Kilkenny is the only city in the republic which does not have a "city council"; it is still a borough but not a county borough and is administered as part of County Kilkenny. Ireland is split into eight regions for NUTS statistical purposes. These are not related to the four traditional provinces but are based on the administrative counties.	http://purl.obolibrary.org/obo/GAZ_00002943

Romania	A country in Southeastern Europe. It shares a border with Hungary and Serbia to the west, Ukraine and the Republic of Moldova to the northeast, and Bulgaria to the south. Romania has a stretch of sea coast along the Black Sea. It is located roughly in the lower basin of the Danube and almost all of the Danube Delta is located within its territory. Romania is divided into forty-one counties (judete), as well as the municipality of Bucharest (Bucuresti) - which is its own administrative unit. The country is further subdivided into 319 cities and 2686 communes (rural localities).	http://purl.obolibrary.org/obo/GAZ_00002951
Russia	A transcontinental country extending over much of northern Eurasia. Russia shares land borders with the following countries (counter-clockwise from northwest to southeast): Norway, Finland, Estonia, Latvia, Lithuania (Kaliningrad Oblast), Poland (Kaliningrad Oblast), Belarus, Ukraine, Georgia, Azerbaijan, Kazakhstan, China, Mongolia and North Korea. The Russian Federation comprises 83 federal subjectsm 46 oblasts(provinces), 21 republics, 9 krais (territories), 4 autonomous okrugs (autonomous districts), one autonomous oblast, and two federal cities. The federal subjects are grouped into seven federal districts. These subjects are divided into districts (raions), cities/towns and urban-type settlements, and, at level 4, selsovets (rural councils), towns and urban-type settlements under the jurisdiction of the district and city districts.	http://purl.obolibrary.org/obo/GAZ_00002721
Rwanda	A small landlocked country in the Great Lakes region of east-central Africa, bordered by Uganda, Burundi, the Democratic Republic of the Congo and Tanzania. Rwanda is divided into five provinces (intara) and subdivided into thirty districts (akarere). The districts are divided into sectors (imirenge).	http://purl.obolibrary.org/obo/GAZ_00001087

Saint Kitts-Nevis	A federal two-island nation in the West Indies. Located in the Leeward Islands. Saint Kitts and Nevis are geographically part of the Leeward Islands. To the north-northwest lie the islands of Saint Eustatius, Saba, Saint Barthelemy, and Saint-Martin/Sint Maarten. To the east and northeast are Antigua and Barbuda, and to the southeast is the small uninhabited island of Redonda, and the island of Montserrat. The federation of Saint Kitts and Nevis is divided into fourteen parishes: nine divisions on Saint Kitts and five on Nevis.	http://purl.obolibrary.org/obo/GAZ_00006906
Saint Lucia	An island nation in the eastern Caribbean Sea on the boundary with the Atlantic Ocean.	http://purl.obolibrary.org/obo/GAZ_00006909
Saint Vincent and the Grenadines	An island nation in the Lesser Antilles chain of the Caribbean Sea.	http://purl.obolibrary.org/obo/GAZ_02000565
Samoa	A country governing the western part of the Samoan Islands archipelago in the South Pacific Ocean. Samoa is made up of eleven itumalo (political districts).	http://purl.obolibrary.org/obo/GAZ_00006910
San Marino	A country in the Apennine Mountains. It is a landlocked enclave, completely surrounded by Italy. San Marino is an enclave in Italy, on the border between the regioni of Emilia Romagna and Marche. Its topography is dominated by the Apennines mountain range. San Marino is divided into nine municipalities, known locally as Castelli (singular castello).	http://purl.obolibrary.org/obo/GAZ_00003102
Sao Tome and Principe	An island nation in the Gulf of Guinea, off the western equatorial coast of Africa. It consists of two islands: Sao Tome and Principe, located about 140 km apart and about 250 and 225 km respectively, off of the northwestern coast of Gabon. Both islands are part of an extinct volcanic mountain range. Sao Tome and Principe is divided into 2 provinces: Principe, Sao Tome. The provinces are further divided into seven districts, six on Sao Tome and one on Principe (with Principe having self-government since 1995-04-29).	http://purl.obolibrary.org/obo/GAZ_00006927

Saudi Arabia	A country on the Arabian Peninsula. It is bordered by Jordan on the northwest, Iraq on the north and northeast, Kuwait, Qatar, Bahrain, and the United Arab Emirates on the east, Oman on the southeast, and Yemen on the south. The Persian Gulf lies to the northeast and the Red Sea to its west. Saudi Arabia is divided into 13 provinces or regions (manatiq; singular mintaqah). Each is then divided into Governorates.	http://purl.obolibrary.org/obo/GAZ_00005279
Scotland	A country that is part of the United Kingdom. Occupying the northern third of the island of Great Britain, it shares a border with England to the south and is bounded by the North Sea to the east, the Atlantic Ocean to the north and west, and the North Channel and Irish Sea to the southwest. In addition to the mainland, Scotland includes over 790 islands including the Northern Isles and the Hebrides.	http://purl.obolibrary.org/obo/GAZ_00002639
Senegal	A country south of the Senegal River in western Africa. Senegal is bounded by the Atlantic Ocean to the west, Mauritania to the north, Mali to the east, and Guinea and Guinea-Bissau to the south. The Gambia lies almost entirely within Senegal, surrounded on the north, east and south; from its western coast Gambia's territory follows the Gambia River more than 300 km inland. Dakar is the capital city of Senegal, located on the Cape Verde Peninsula on the country's Atlantic coast. Senegal is subdivided into 11 regions and further subdivided into 34 Departements, 103 Arrondissements (neither of which have administrative function) and by Collectivites Locales.	http://purl.obolibrary.org/obo/GAZ_00000913

Serbia	A landlocked country in Central and Southeastern Europe, covering the southern part of the Pannonian Plain and the central part of the Balkan Peninsula. It is bordered by Hungary to the north; Romania and Bulgaria to the east; Republic of Macedonia, Montenegro to the south; Croatia and Bosnia and Herzegovina to the west. The capital is Belgrade. Serbia is divided into 29 districts plus the City of Belgrade. The districts and the city of Belgrade are further divided into municipalities. Serbia has two autonomous provinces: Kosovo and Metohija in the south (5 districts, 30 municipalities), and Vojvodina in the north (7 districts, 46 municipalities).	http://purl.obolibrary.org/obo/GAZ_00002957
Sierra Leone	A country in West Africa. It is bordered by Guinea in the north and east, Liberia in the southeast, and the Atlantic Ocean in the southwest and west. The Republic of Sierra Leone is composed of 3 provinces and one area called the Western Area; the provinces are further divided into 12 districts. The Western Area is also divided into 2 districts.	http://purl.obolibrary.org/obo/GAZ_00000914
Singapore	An island nation located at the southern tip of the Malay Peninsula. It lies 137 km north of the Equator, south of the Malaysian State of Johor and north of Indonesia's Riau Islands. Singapore consists of 63 islands, including mainland Singapore. There are two man-made connections to Johor, Malaysia, Johor-Singapore Causeway in the north, and Tuas Second Link in the west. Since 2001-11-24, Singapore has had an administrative subdivision into 5 districts. It is also divided into five Regions, urban planning subdivisions with no administrative role.	http://purl.obolibrary.org/obo/GAZ_00003923

Slovak Republic	A landlocked country in Central Europe. The Slovak Republic borders the Czech Republic and Austria to the west, Poland to the north, Ukraine to the east and Hungary to the south. The largest city is its capital, Bratislava. Slovakia is subdivided into 8 kraje (singular - kraj, usually translated as regions. The kraje are subdivided into many okresy (singular okres, usually translated as districts). Slovakia currently has 79 districts.	http://purl.obolibrary.org/obo/GAZ_00002956
Slovenia	A country in southern Central Europe bordering Italy to the west, the Adriatic Sea to the southwest, Croatia to the south and east, Hungary to the northeast, and Austria to the north. The capital of Slovenia is Ljubljana. As of 2005-05 Slovenia is divided into 12 statistical regions for legal and statistical purposes. Slovenia is divided into 210 local municipalities, eleven of which have urban status.	http://purl.obolibrary.org/obo/GAZ_00002955
Solomon Islands	A nation in Melanesia, east of Papua New Guinea, consisting of nearly one thousand islands. Together they cover a land mass of 28,400 km2. The capital is Honiara, located on the island of Guadalcanal.	http://purl.obolibrary.org/obo/GAZ_00005275
Somalia	A country located in the Horn of Africa. It is bordered by Djibouti to the northwest, Kenya on its southwest, the Gulf of Aden with Yemen on its north, the Indian Ocean at its east, and Ethiopia to the west. Prior to the civil war, Somalia was divided into eighteen regions (gobollada, singular gobol), which were in turn subdivided into districts. On a de facto basis, northern Somalia is now divided up among the quasi-independent states of Puntland, Somaliland, Galmudug and Maakhir.	http://purl.obolibrary.org/obo/GAZ_00001104

South Africa	A country located at the southern tip of Africa. It borders the Atlantic and Indian oceans and Namibia, Botswana, Zimbabwe, Mozambique, Swaziland, and Lesotho, an independent enclave surrounded by South African territory. It is divided into nine provinces which are further subdivided into 52 districts: 6 metropolitan and 46 district municipalities. The 46 district municipalities are further subdivided into 231 local municipalities. The district municipalities also contain 20 district management areas (mostly game parks) that are directly governed by the district municipalities. The six metropolitan municipalities perform the functions of both district and local municipalities.	http://purl.obolibrary.org/obo/GAZ_00001094
South Korea	A republic in East Asia, occupying the southern half of the Korean Peninsula. South Korea is divided into 8 provinces (do), 1 special autonomous province (teukbyeol jachido), 6 metropolitan cities (gwangyeoksi), and 1 special city (teukbyeolsi). These are further subdivided into a variety of smaller entities, including cities (si), counties (gun), districts (gu), towns (eup), townships (myeon), neighborhoods (dong) and villages (ri).	http://purl.obolibrary.org/obo/GAZ_00002802
South Sudan	A state located in Africa with Juba as its capital city. It's bordered by Ethiopia to the east, Kenya, Uganda, and the Democratic Republic of the Congo to the south, and the Central African Republic to the west and Sudan to the North. Southern Sudan includes the vast swamp region of the Sudd formed by the White Nile, locally called the Bahr el Jebel.	http://purl.obolibrary.org/obo/GAZ_00233439
Sri Lanka	An island nation in South Asia, located about 31 km off the southern coast of India. Sri Lanka is divided into 9 provinces and 25 districts. Districts are divided into Divisional Secretariats.	http://purl.obolibrary.org/obo/GAZ_00003924

Sudan	A country in North Africa. It is bordered by Egypt to the north, the Red Sea to the northeast, Eritrea and Ethiopia to the east, Kenya and Uganda to the southeast, Democratic Republic of the Congo and the Central African Republic to the southwest, Chad to the west and Libya to the northwest. Sudan is divided into twenty-six states (wilayat, singular wilayah) which in turn are subdivided into 133 districts.	http://purl.obolibrary.org/obo/GAZ_00000560
Sumatra	An Indonesian island that runs approximately 1,790 km northwest - southeast, crossing the equator near the center. At its widest point the island spans 435 km. The interior of the island is dominated by two geographical regions: the Barisan Mountains in the west and swampy plains in the east. To the southeast is Java, separated by the Sunda Strait. To the north is the Malay Peninsula, separated by the Straits of Malacca. To the east is Borneo, across the Karimata Strait. West of the island is the Indian Ocean. The backbone of the island is the Barisan mountains chain, with the active volcano Mount Kerinci's 3,805 m the highest point, located at about the midpoint of the range. The volcanic activity of this region endowed the region with fertile land and beautiful sceneries, for instance around the Lake Toba. It also contains deposits of coal and gold.	http://purl.obolibrary.org/obo/GAZ_00024432
Suriname	A country in northern South America. It is situated between French Guiana to the east and Guyana to the west. The southern border is shared with Brazil and the northern border is the Atlantic coast. The southernmost border with French Guiana is disputed along the Marowijne river. Suriname is divided into 10 districts, each of which is divided into Ressorten.	http://purl.obolibrary.org/obo/GAZ_00002525
Swaziland	A small, landlocked country in Africa embedded between South Africa in the west, north and south and Mozambique in the east. Swaziland is divided into four districts, each of which is divided into Tinkhundla (singular, Inkhundla).	http://purl.obolibrary.org/obo/GAZ_00001099

Sweden	A Nordic country on the Scandinavian Peninsula in Northern Europe. It has borders with Norway (west and north) and Finland (northeast). Sweden is a unitary state, currently divided into twenty-one counties (lan). Each county further divides into a number of municipalities or kommuner, with a total of 290 municipalities in 2004.	http://purl.obolibrary.org/obo/GAZ_00002729
Switzerland	A federal republic in Europe. Switzerland is bordered by Germany, France, Italy, Austria and Liechtenstein. The Swiss Confederation consists of 26 cantons. The Cantons comprise a total of 2,889 municipalities. Within Switzerland there are two enclaves: Busingen belongs to Germany, Campione d'Italia belongs to Italy.	http://purl.obolibrary.org/obo/GAZ_00002941
Syria	A country in Southwest Asia, bordering Lebanon, the Mediterranean Sea and the island of Cyprus to the west, Israel to the southwest, Jordan to the south, Iraq to the east, and Turkey to the north. Syria has fourteen governorates, or muhafazat (singular: muhafazah). The governorates are divided into sixty districts, or manatiq (singular: mintaqah), which are further divided into sub-districts, or nawahi (singular: nahia).	http://purl.obolibrary.org/obo/GAZ_00002474
Tahiti	The largest island in the Windward group of the French Polynesia, located in the archipelago of Society Islands in the southern Pacific Ocean. Tahiti is some 45 km long at the widest point and covers 1,045 km2, with the highest elevation being at 2,241 m) above sea level (Mount Orohena). The island consists of two roughly round portions centered on volcanic mountains, connected by a short isthmus named after the small town of Taravao, which sits there. The northwestern part is known as Tahiti Nui ("big Tahiti"), and the southeastern part, much smaller, is known as Tahiti Iti ("small Tahiti") or Taiarapu.	http://purl.obolibrary.org/obo/GAZ_00005328

Tajikistan	A mountainous landlocked country in Central Asia. Afghanistan borders to the south, Uzbekistan to the west, Kyrgyzstan to the north, and People's Republic of China to the east. Tajikistan consists of 4 administrative divisions. These are the provinces (viloyat) of Sughd and Khatlon, the autonomous province of Gorno-Badakhshan (abbreviated as GBAO), and the Region of Republican Subordination (RRP, Raiony Respublikanskogo Podchineniya in Russian; formerly known as Karotegin Province). Each region is divided into several districts (nohiya or raion).	http://purl.obolibrary.org/obo/GAZ_00006912
Tanzania	A country in East Africa bordered by Kenya and Uganda on the north, Rwanda, Burundi and the Democratic Republic of the Congo on the west, and Zambia, Malawi and Mozambique on the south. To the east it borders the Indian Ocean. Tanzania is divided into 26 regions (mkoa), twenty-one on the mainland and five on Zanzibar (three on Unguja, two on Pemba). Ninety-eight districts (wilaya), each with at least one council, have been created to further increase local authority; the councils are also known as local government authorities. Currently there are 114 councils operating in 99 districts; 22 are urban and 92 are rural. The 22 urban units are further classified as city councils (Dar es Salaam and Mwanza), municipal councils (Arusha, Dodoma, Iringa, Kilimanjaro, Mbeya, Morogoro, Shinyanga, Tabora, and Tanga) or town councils (the remaining eleven communities).	http://purl.obolibrary.org/obo/GAZ_00001103
Tawain	A state in East Asia with de facto rule of the island of Tawain and adjacent territory. The Republic of China currently administers two historical provinces of China (one completely and a small part of another one) and centrally administers two direct-controlled municipalities.	http://purl.obolibrary.org/obo/GAZ_00005341

Thailand	A country in Southeast Asia. To its east lie Laos and Cambodia; to its south, the Gulf of Thailand and Malaysia; and to its west, the Andaman Sea and Burma. Its capital and largest city is Bangkok. Thailand is divided into 75 provinces (changwat), which are gathered into 5 groups of provinces by location. There are also 2 special governed districts: the capital Bangkok (Krung Thep Maha Nakhon) and Pattaya, of which Bangkok is at provincial level and thus often counted as a 76th province.	http://purl.obolibrary.org/obo/GAZ_00003744
Timor-Leste	A country in Southeast Asia. It comprises the eastern half of the island of Timor, the nearby islands of Atauro and Jaco, and Oecussi-Ambeno, an exclave on the northwestern side of the island, within Indonesian West Timor. The small country of 15,410 km2 is located about 640 km northwest of Darwin, Australia. East Timor is divided into thirteen administrative districts, are subdivided into 65 subdistricts, 443 sucos and 2,336 towns, villages and hamlets.	http://purl.obolibrary.org/obo/GAZ_00006913
Togo	A country in West Africa bordering Ghana in the west, Benin in the east and Burkina Faso in the north. In the south, it has a short Gulf of Guinea coast, on which the capital Lome is located.	http://purl.obolibrary.org/obo/GAZ_00000915
Tonga	An island nation in the Pacific Ocean.	http://purl.obolibrary.org/obo/GAZ_00006916
Trinidad and Tobago	An archipelagic state in the southern Caribbean, lying northeast of the South American nation of Venezuela and south of Grenada in the Lesser Antilles. It also shares maritime boundaries with Barbados to the northeast and Guyana to the southeast. The country covers an area of 5,128 km2and consists of two main islands, Trinidad and Tobago, and 21 smaller islands.	http://purl.obolibrary.org/obo/GAZ_00003767

Tunisia	A country situated on the Mediterranean coast of North Africa. It is bordered by Algeria to the west and Libya to the southeast. Tunisia is subdivided into 24 governorates, divided into 262 "delegations" or "districts" (mutamadiyat), and further subdivided into municipalities (shaykhats).	http://purl.obolibrary.org/obo/GAZ_00000562
Turkey	A Eurasian country that stretches across the Anatolian peninsula in western Asia and Thrace (Rumelia) in the Balkan region of southeastern Europe. Turkey borders eight countries: Bulgaria to the northwest; Greece to the west, Georgia to the northeast; Armenia, Azerbaijan (the exclave of Nakhichevan), and Iran to the east; and Iraq and Syria to the southeast. The Mediterranean Sea and Cyprus are to the south; the Aegean Sea and Archipelago are to the west; and the Black Sea is to the north. Separating Anatolia and Thrace are the Sea of Marmara and the Turkish Straits (the Bosporus and the Dardanelles), which are commonly reckoned to delineate the border between Asia and Europe, thereby making Turkey transcontinental. The territory of Turkey is subdivided into 81 provinces for administrative purposes. The provinces are organized into 7 regions for census purposes; however, they do not represent an administrative structure. Each province is divided into districts, for a total of 923 districts.	http://purl.obolibrary.org/obo/GAZ_00000558
Turkmenistan	A country in Central Asia. It is bordered by Afghanistan to the southeast, Iran to the southwest, Uzbekistan to the northeast, Kazakhstan to the northwest, and the Caspian Sea to the west. It was a constituent republic of the Soviet Union, the Turkmen Soviet Socialist Republic. Turkmenistan is divided into five provinces or welayatlar (singular - welayat) and one independent city.	http://purl.obolibrary.org/obo/GAZ_00005018
Tuvalu	A Polynesian island nation located in the Pacific Ocean midway between Hawaii and Australia.	http://purl.obolibrary.org/obo/GAZ_00009715

U.S. Virgin Islands	A group of islands in the Caribbean that are an insular area of the United States.	http://purl.obolibrary.org/obo/GAZ_00003959
Uganda	A landlocked country in East Africa, bordered on the east by Kenya, the north by Sudan, on the west by the Democratic Republic of the Congo, on the southwest by Rwanda, and on the south by Tanzania. The southern part of the country includes a substantial portion of Lake Victoria, within which it shares borders with Kenya and Tanzania. Uganda is divided into 80 districts, spread across four administrative regions: Northern, Eastern, Central and Western. The districts are subdivided into counties.	http://purl.obolibrary.org/obo/GAZ_00001102
Ukraine	A country in Eastern Europe. It borders Russia to the east, Belarus to the north, Poland, Slovakia and Hungary to the west, Romania and Moldova to the southwest, and the Black Sea and Sea of Azov to the south. Ukraine is subdivided into twenty-four oblasts (provinces) and one autonomous republic (avtonomna respublika), Crimea. Additionally, the cities of Kiev, the capital, and Sevastopol, both have a special legal status. The 24 oblasts and Crimea are subdivided into 490 raions (districts), or second-level administrative units.	http://purl.obolibrary.org/obo/GAZ_00002724
United Arab Emirates	A Middle Eastern federation of seven states situated in the southeast of the Arabian Peninsula in Southwest Asia on the Persian Gulf, bordering Oman and Saudi Arabia. The seven states, termed emirates, are Abu Dhabi, Ajman, Dubai, Fujairah, Ras al-Khaimah, Sharjah, and Umm al-Quwain.	http://purl.obolibrary.org/obo/GAZ_00005282

United States of America	A federal constitutional republic comprising fifty states and a federal district. The country is situated mostly in central North America, where its forty-eight contiguous states and Washington, DC, the capital district, lie between the Pacific and Atlantic Oceans, bordered by Canada to the north and Mexico to the south. The State of Alaska is in the northwest of the continent, with Canada to its east and Russia to the west across the Bering Strait, and the State of Hawaii is in the mid-Pacific. The United States also possesses several territories, or insular areas, that are scattered around the Caribbean and Pacific. The states are divided into smaller administrative regions, called counties in most states, exceptions being Alaska (parts of the state are organized into subdivisions called boroughs; the rest of the state's territory that is not included in any borough is divided into "census areas"), and Louisiana (which is divided into county-equivalents that are called parishes). There are also independent cities which are within particular states but not part of any particular county or consolidated city-counties. Another type of organization is where the city and county are unified and function as an independent city. There are thirty-nine independent cities in Virginia and other independent cities or city-counties are San Francisco, California, Baltimore, Maryland, St. Louis, Missouri, Denver, Colorado and Carson City, Nevada. Counties can include a number of cities, towns, villages, or hamlets, or sometimes just a part of a city. Counties have varying degrees of political and legal significance, but they are always administrative divisions of the state. Counties in many states are further subdivided into townships, which, by definition, are administrative divisions of a county. In some states, such as Michigan, a township can file a charter with the state government, making itself into a "charter township", which is a type of mixed municipal and township	http://purl.obolibrary.org/obo/GAZ_00002459

	status (giving the township some of the rights of a city without all of the responsibilities), much in the way a metropolitan municipality is a mixed municipality and county.	
Unknown	Unknown location	https://ontobee.org/ontology/NCIT?iri=http%3A%2F%2Fpurl.obolibrary.org%2Fobo%2FNCIT_C17998
Uruguay	A country located in the southeastern part of South America. It is bordered by Brazil to the north, by Argentina across the bank of both the Uruguay River to the west and the estuary of Rio de la Plata to the southwest, and the South Atlantic Ocean to the southeast. Uraguay consists of 19 departments (departamentos, singular - departamento).	http://purl.obolibrary.org/obo/GAZ_00002930
US: Alabama	A state located in the southern region of the United States of America. It is bordered by Tennessee to the north, Georgia to the east, Florida and the Gulf of Mexico to the south, and Mississippi to the west.	http://purl.obolibrary.org/obo/GAZ_00006881
US: Alaska	A state in the United States of America, in the extreme northwest portion of the North American continent. The state is bordered by Yukon Territory and British Columbia, Canada to the east, the Gulf of Alaska and the Pacific Ocean to the south, the Bering Sea, Bering Strait, and Chukchi Sea to the west, and the Beaufort Sea and the Arctic Ocean.	http://purl.obolibrary.org/obo/GAZ_00002521
US: Arizona	A state located in the southwestern region of the United States. It borders New Mexico, Utah, Nevada, California, touches Colorado, and has a 626 km international border with the States of Sonora and Baja California in Mexico.	http://purl.obolibrary.org/obo/GAZ_00002518

US: Arkansas	A state located in the southern region of the United States. Arkansas shares a border with six states, with its eastern border largely defined by the Mississippi River. Arkansas shares its southern border with Louisiana, its northern border with Missouri, its eastern border with Tennessee and Mississippi, and its western border with Texas and Oklahoma.	http://purl.obolibrary.org/obo/GAZ_00004441
US: California	A state on the West Coast of the United States, along the Pacific Ocean. It is bordered by Oregon to the north, Nevada to the east, Arizona to the southeast, and to the south the Mexican state of Baja California.	http://purl.obolibrary.org/obo/GAZ_00002461
US: Colorado	A state located in the Rocky Mountain region of the United States of America.	http://purl.obolibrary.org/obo/GAZ_00006254
US: Connecticut	A state located in the New England region of the northeastern United States of America. The state borders New York to the west and south (Long Island by sea), Massachusetts to the north, and Rhode Island to the east. Portions of southwestern Connecticut are considered part of the New York metropolitan area.	http://purl.obolibrary.org/obo/GAZ_00002591
US: Delaware	A state located on the Atlantic Coast in the Mid-Atlantic region of the United States. Delaware is located in the eastern section of the Delmarva Peninsula, between Delaware Bay and Chesapeake Bay. Delaware is bounded to the north by Pennsylvania; to the east by the Delaware River, Delaware Bay, New Jersey and the Atlantic Ocean; and to the west and south by Maryland.	http://purl.obolibrary.org/obo/GAZ_00002878
US: District of Columbia	The area which constitutes of, and is coextensive with, the city of Washington, the Capital of the United States. The District of Columbia is not a state.	http://purl.obolibrary.org/obo/GAZ_00003175
US: Florida	A state located in the southeastern region of the United States, bordering Alabama to the northwest and Georgia to the northeast. Much of the land mass of the state is a large peninsula with the Gulf of Mexico to the west and south, and the Atlantic Ocean to the east.	http://purl.obolibrary.org/obo/GAZ_00002888

US: Georgia	Georgia is bordered on the south by Florida; on the east by the Atlantic Ocean and South Carolina; on the west by Alabama and by Florida in the extreme southwest; and on the north by Tennessee and North Carolina. The northern part of the state is in the Blue Ridge Mountains, a mountain range in the vast mountain system of the Appalachians. The central piedmont extends from the foothills to the fall line, where the rivers cascade down in elevation to the continental coastal plain of the southern part of the state.	http://purl.obolibrary.org/obo/GAZ_00002611
US: Hawaii	A state in the United States, located on an archipelago in the central Pacific Ocean southwest of the continental United States, southeast of Japan, and northeast of Australia.	http://purl.obolibrary.org/obo/GAZ_00003939
US: Idaho	A state in the Pacific Northwest region of the United States of America. Idaho borders six states and one Canadian province, but does not border the Pacific Ocean at any point and is not, as such, a coastal state. The states of Washington and Oregon are to the west, Nevada and Utah are to the south, and Montana and Wyoming are to the east. The province of British Columbia, to the north, also shares a small (77 km) border with Idaho.	http://purl.obolibrary.org/obo/GAZ_00006291
US: Illinois	A midwestern state of the United States of America. The Northeastern border of Illinois is Lake Michigan. Its eastern border with Indiana is all of the land west of the Wabash River, and a north-south line above Post Vincennes, or 87deg31min30secW. Its northern border with Wisconsin is fixed at 42deg30minN. Its western border with Missouri and Iowa is the Mississippi River. Its southern border with Kentucky is the Ohio River. Illinois also borders Michigan, but only via a water boundary in Lake Michigan.	http://purl.obolibrary.org/obo/GAZ_00003142

US: Indiana	A midwestern state of the United States of America. Indiana is bounded on the north by Lake Michigan and the state of Michigan; on the east by Ohio; on the south by Kentucky, with which it shares the Ohio River as a border; and on the west by Illinois. Indiana is one of the Great Lakes states.	http://purl.obolibrary.org/obo/GAZ_00004439
US: Iowa	A state located in the Midwestern region of the United States of America. Iowa is bordered by the Mississippi River on the east; the Missouri River and the Big Sioux River on the west; the northern boundary is a line along 43 degrees, 30 minutes north latitude. The southern border is the Des Moines River and a line along approximately 40 degrees 35 minutes north.	http://purl.obolibrary.org/obo/GAZ_00004438
US: Kansas	A state in the central region of the United States of America. Kansas is bordered by Nebraska on the north; Missouri on the east; Oklahoma on the south; and Colorado on the west.	http://purl.obolibrary.org/obo/GAZ_00004435
US: Kentucky	A state located in the East Central United States of America. Kentucky borders on seven states, from both the Midwest and the Southeast. West Virginia lies to the east, Virginia to the southeast, Tennessee to the south, Missouri to the west, Illinois and Indiana to the northwest, and Ohio to the north and northeast.	http://purl.obolibrary.org/obo/GAZ_00004440
US: Louisiana	A state located in the southern region of the United States of America. Louisiana is bordered to the west by the State of Texas; to the north by Arkansas; to the east by the State of Mississippi; and to the south by the Gulf of Mexico.	http://purl.obolibrary.org/obo/GAZ_00004432
US: Maine	A state in the New England region of the northeastern United States of America, bordering the Atlantic Ocean to the southeast, New Hampshire to the southwest, the Canadian provinces of Quebec to the northwest and New Brunswick to the northeast.	http://purl.obolibrary.org/obo/GAZ_00002602
US: Maryland	A state located in the Mid Atlantic region of the United States, bordering Virginia, West Virginia and the District of Columbia to the south and west, Pennsylvania to the north, and Delaware to the east.	http://purl.obolibrary.org/obo/GAZ_00002519

US: Massachusetts	A state located in the New England region of the northeastern United States. It borders Rhode Island and Connecticut to the south, New York to the west, and Vermont and New Hampshire to the north. To the east, it borders the Atlantic Ocean.	http://purl.obolibrary.org/obo/GAZ_00002537
US: Michigan	A Midwestern state of the United States of America. Michigan consists of two peninsulas that lie between 82deg30minW to about 90deg30minW longitude, and are separated by the Straits of Mackinac. With the exception of two small areas that are drained by the Mississippi River by way of the Wisconsin River in the Upper Peninsula and by way of the Kankakee-Illinois River in the Lower Peninsula, Michigan is drained by the Great Lakes-Saint Lawrence watershed. The Great Lakes that border Michigan from east to west are Lake Erie, Lake Huron, Lake Michigan and Lake Superior. The state is bounded on the south by the states of Ohio and Indiana, sharing land and water boundaries with both.	http://purl.obolibrary.org/obo/GAZ_00003152
US: Midwest	The geographic area of the midwestern region of the United States in general or when the specific state or states are not indicated. The states usually included in this region are Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, Ohio, Oklahoma, North Dakota, South Dakota and Wisconsin.	https://uts.nlm.nih.gov/uts/umls/concept/C0026081
US: Minnesota	A state in the Midwestern region of the United States. The state shares a Lake Superior water border with Michigan and Wisconsin on the northeast; the remainder of the eastern border is with Wisconsin. Iowa is to the south, North Dakota and South Dakota to the west, and the Canadian provinces of Ontario and Manitoba to the north.	http://purl.obolibrary.org/obo/GAZ_00002539

US: Mississippi	A state located in the Deep South of the United States. Jackson is the state capital and largest city. Mississippi is bordered on the north by Tennessee, on the east by Alabama, on the south by Louisiana and a narrow coast on the Gulf of Mexico, and on the west, across the Mississippi River, by Louisiana and Arkansas.	http://purl.obolibrary.org/obo/GAZ_00004430
US: Missouri	A state in the Midwest region of the United States. Missouri is bounded on the north by Iowa; on the east, across the Mississippi River, by Illinois, Kentucky, and Tennessee; on the south by Arkansas; and on the west by Oklahoma, Kansas, and Nebraska (the last across the Missouri River).	http://purl.obolibrary.org/obo/GAZ_00004431
US: Montana	A state in the Western United States. To the north, Montana and Canada share a 877 km border. The state borders the Canadian provinces of British Columbia, Alberta, and Saskatchewan. To the east, the state borders North Dakota and South Dakota. To the south is Wyoming and to the west and southwest is Idaho.	http://purl.obolibrary.org/obo/GAZ_00002606
US: Nebraska	A state located on the Great Plains of the Midwestern United States and Western United States.	http://purl.obolibrary.org/obo/GAZ_00005070
US: Nevada	A state located in the western region of the United States of America. Nevada is almost entirely within the Basin and Range Province, and is broken up by many north-south mountain ranges. Most of these ranges have endorheic valleys between them, which belies the image portrayed by the term Great Basin. The southern third of the state, where the Las Vegas area is situated, is within the Mojave Desert.	http://purl.obolibrary.org/obo/GAZ_00004444
US: New Hampshire	A state in the New England region of the northeastern United States of America. It borders Massachusetts to the south, Vermont to the west, Maine to the east, and the Canadian province of Quebec to the north.	http://purl.obolibrary.org/obo/GAZ_00004428

US: New Jersey	A state in the Mid-Atlantic and Northeastern regions of the United States. It is bordered on the north by New York, on the east by the Atlantic Ocean, on the southwest by Delaware, and on the west by Pennsylvania. New Jersey lies within the sprawling metropolitan areas of New York and Philadelphia.	http://purl.obolibrary.org/obo/GAZ_00002557
US: New Mexico	A state located in the southwestern region of the United States.	http://purl.obolibrary.org/obo/GAZ_00004427
US: New York	US: New York	http://purl.obolibrary.org/obo/GAZ_00002514
US: North Carolina	A state located on the Atlantic Seaboard in the southeastern United States. The state borders South Carolina and Georgia to the south, Tennessee to the west and Virginia to the north.	http://purl.obolibrary.org/obo/GAZ_00002520
US: North Dakota	A state located in the Midwestern and Western regions of the United States of America.	http://purl.obolibrary.org/obo/GAZ_00004442
US: Northeast	A census region of the United States consisting of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania.	https://uts.nlm.nih.gov/uts/umls/concept/C2698501
US: Ohio	A Midwestern state of the United States. Ohio's southern border is defined by the Ohio River (with the border being at the 1793 low-water mark on the north side of the river), and much of the northern border is defined by Lake Erie. Ohio's neighbors are Pennsylvania to the east, Michigan to the northwest, Ontario Canada, to the north, Indiana to the west, Kentucky on the south, and West Virginia on the southeast.	http://purl.obolibrary.org/obo/GAZ_00004421
US: Oklahoma	A state located in the South Central region and Southern Region of the United States of America. It is bounded on the east by Arkansas and Missouri, on the north by Kansas, on the northwest by Colorado, on the far west by New Mexico, and on the south and near-west by Texas.	http://purl.obolibrary.org/obo/GAZ_00002546

US: Oregon	A state in the Pacific Northwest region of the United States. Oregon is located on the Pacific coast between Washington to the north, California to the south, Nevada on the southeast and Idaho to the east. The Columbia and Snake rivers delineate much of Oregon's northern and eastern boundaries respectively.	http://purl.obolibrary.org/obo/GAZ_00002515
US: Pennsylvania	A state located in the Northeastern and Middle Atlantic regions of the United States. The state borders Delaware and Maryland to the south, West Virginia to the southwest, Ohio to the west, New York and Canada to the north, and New Jersey to the east.	http://purl.obolibrary.org/obo/GAZ_00002542
US: Rhode Island	A state in the New England region of the United States. By land Rhode Island borders Connecticut to the west and Massachusetts to the north and east. Rhode Island also shares a water border with New York to the southwest.	http://purl.obolibrary.org/obo/GAZ_00002531
US: South	A census region of the United States consisting of Florida, Georgia, North Carolina, South Carolina, Virginia, West Virginia, Maryland, Washington, D.C., Delaware, Alabama, Kentucky, Mississippi, Tennessee, Arkansas, Louisiana, Oklahoma, and Texas.	https://uts.nlm.nih.gov/uts/umls/concept/C2699497
US: South Carolina	A state in the southern region (Deep South) of the United States. It borders Georgia to the south and North Carolina to the north.	http://purl.obolibrary.org/obo/GAZ_00002524
US: South Dakota	A state located in the Midwestern region of the United States of America.	http://purl.obolibrary.org/obo/GAZ_00004443
US: Tennessee	A state located in the Southern United States. The capital city is Nashville, and the largest city is Memphis. Tennessee borders eight other states: Kentucky and Virginia to the north; North Carolina to the east; Georgia, Alabama and Mississippi on the south; Arkansas and Missouri on the Mississippi River to the west.	http://purl.obolibrary.org/obo/GAZ_00004411

US: Texas	A state located in the South Central United States. The Rio Grande, Red River and Sabine River form natural state borders, Oklahoma on the north, Louisiana and Arkansas on the east, and the Mexican states of Chihuahua, Coahuila, Nuevo Leon, and Tamaulipas to the south.	http://purl.obolibrary.org/obo/GAZ_00002580
US: Utah	A western state of the United States. Utah has three distinct geological regions: the Rocky Mountains, the Great Basin, and the Colorado Plateau.	http://purl.obolibrary.org/obo/GAZ_00004413
US: Vermont	A state in the New England region of the northeastern United States of America. It is bordered by Massachusetts to the south, New Hampshire to the east, New York to the west, and the Canadian province of Quebec to the north.	http://purl.obolibrary.org/obo/GAZ_00004429
US: Virginia	A state on the Atlantic Coast of the Southern United States. Virginia is bordered by Maryland and the District of Columbia to the north and east; the Atlantic Ocean to the east; by North Carolina and Tennessee to the south; by Kentucky to the west and by West Virginia to the north and west. Due to a peculiarity of Virginia's original charter, its boundary with Maryland does not extend past the low-water mark of the southern shore of the Potomac River, so Maryland and the District of Columbia contain the whole width of the river rather than splitting it between them and Virginia. The southern border is defined as the 36deg30min parallel north.	http://purl.obolibrary.org/obo/GAZ_00003171

US: Washington	The Northwestern-most state of the contiguous United States. Its northern border lies mostly along the 49th parallel, and then via marine boundaries through the Strait of Georgia, Haro Strait and Strait of Juan de Fuca, with the Canadian province of British Columbia to the north. Washington borders Oregon to the south, with the Columbia River forming most of the boundary and the 46th parallel forming the eastern part of the southern boundary. To the east Washington borders Idaho, bounded mostly by the meridian running north from the confluence of the Snake River and Clearwater River, except for the southernmost section where the border follows the Snake River. To the west of Washington lies the Pacific Ocean.	http://purl.obolibrary.org/obo/GAZ_00002553
US: West	A census region of the United States consisting of Alaska, California, Hawaii, Oregon, Washington, Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming.	https://uts.nlm.nih.gov/uts/umls/concept/C2700270
US: West Virginia	A state in the Appalachian, Upland South, and Mid-Atlantic regions of the United States, bordered by Virginia on the southeast, Kentucky on the southwest, Ohio on the northwest, and Pennsylvania and Maryland on the northeast. The capital and largest city is Charleston.	http://purl.obolibrary.org/obo/GAZ_00004414
US: Wisconsin	A State located in the north-central part of the United States. Wisconsin is bordered by the Montreal River; Lake Superior and Michigan to the north; by Lake Michigan to the east; by Illinois to the south; and by Iowa and Minnesota to the west. The state's boundaries include the Mississippi River and Saint Croix River in the west, and the Menominee River in the northeast Wisconsin's capital is Madison, and its largest city is Milwaukee.	http://purl.obolibrary.org/obo/GAZ_00002586
US: Wyoming	A state in the northwestern region of the United States. Wyoming is bordered on the north by Montana, on the east by South Dakota and Nebraska, on the south by Colorado, on the southwest by Utah, and on the west by Idaho.	http://purl.obolibrary.org/obo/GAZ_00002533

Uzbekistan	A doubly landlocked country in Central Asia, formerly part of the Soviet Union. It shares borders with Kazakhstan to the west and to the north, Kyrgyzstan and Tajikistan to the east, and Afghanistan and Turkmenistan to the south. Uzbekistan is divided into twelve provinces (viloyatlar) one autonomous republic (respublika and one independent city (shahar).	http://purl.obolibrary.org/obo/GAZ_00004979
Vanuatu	An island nation located in the South Pacific Ocean.	http://purl.obolibrary.org/obo/GAZ_00006918
Vatican City	A landlocked sovereign city-state whose territory consists of a walled enclave within the City of Rome. It includes extraterritorial buildings and property in Rome and elsewhere it Italy.	http://purl.obolibrary.org/obo/GAZ_00003103
Venezuela	A country on the northern coast of South America. The country comprises a continental mainland and numerous islands located off the Venezuelan coastline in the Caribbean Sea. The Bolivarian Republic of Venezuela possesses borders with Guyana to the east, Brazil to the south, and Colombia to the west. Trinidad and Tobago, Grenada, St. Lucia, Barbados, Curacao, Bonaire, Aruba, Saint Vincent and the Grenadines and the Leeward Antilles lie just north, off the Venezuelan coast. Venezuela is divided into twenty-three states (Estados), a capital district (distrito capital) corresponding to the city of Caracas, the Federal Dependencies (Dependencias Federales, a special territory), and Guayana Esequiba (claimed in a border dispute with Guyana). Venezuela is further subdivided into 335 municipalities (municipios); these are subdivided into over one thousand parishes (parroquias).	http://purl.obolibrary.org/obo/GAZ_00002931
Vietnam	The easternmost country on the Indochina Peninsula in Southeast Asia. It borders the Gulf of Thailand, Gulf of Tonkin, and South China Sea, alongside China, Laos, and Cambodia.	http://purl.obolibrary.org/obo/GAZ_00003756

Wales	One of the four constituent countries of the United Kingdom of Great Britain and Northern Ireland. It is located in the south-west of the island of Great Britain and is bordered by England to the east, the Bristol Channel (Mor Hafren) to the south and the Irish Sea (Mor Iwerddon) to the west and north, and also by the estuary of the River Dee (Afon Dyfrdwy) in the north-east. Wales is divided into 22 unitary authorities. There are nine counties, three cities, and ten county boroughs, although all have equal powers. Collectively these are known as the principal areas of Wales. They came into being on 1996-04-01.	http://purl.obolibrary.org/obo/GAZ_00002640
Western Sahara	A territory of northwestern Africa, bordered by Morocco to the north, Algeria in the northeast, Mauritania to the east and south, and the Atlantic Ocean on the west. Western Sahara is administratively divided into four regions.	http://purl.obolibrary.org/obo/GAZ_00000564
Yemen	A country located on the Arabian Peninsula in Southwest Asia. Yemen is bordered by Saudi Arabia to the North, the Red Sea to the West, the Arabian Sea and Gulf of Aden to the South, and Oman to the east. Yemen's territory includes over 200 islands, the largest of which is Socotra, about 415 km to the south of Yemen, off the coast of Somalia. As of 2004-02, Yemen is divided into twenty governorates (muhafazah) and one municipality. The population of each governorate is listed in the table below. The governorates of Yemen are divided into 333 districts (muderiah). The districts are subdivided into 2,210 sub-districts, and then into 38,284 villages (as of 2001).	http://purl.obolibrary.org/obo/GAZ_00005284
Yugoslavia (formerly)	A former state. The six countries that were once part of Yugoslavia are Bosnia-Herzegovina, Croatia, Macedonia, Montenegro, Serbia, and Slovenia.	http://purl.obolibrary.org/obo/GAZ_00052663

Zambia	A landlocked country in Southern Africa. The neighbouring countries are the Democratic Republic of the Congo to the north, Tanzania to the north-east, Malawi to the east, Mozambique, Zimbabwe, Botswana, and Namibia to the south, and Angola to the west. The capital city is Lusaka. Zambia is divided into nine provinces. Each province is subdivided into several districts with a total of 73 districts.	http://purl.obolibrary.org/obo/GAZ_00001107
Zimbabwe	A landlocked country in the southern part of the continent of Africa, between the Zambezi and Limpopo rivers. It is bordered by South Africa to the south, Botswana to the southwest, Zambia to the northwest, and Mozambique to the east. Zimbabwe is divided into eight provinces and two cities with provincial status. The provinces are subdivided into 59 districts and 1,200 municipalities.	http://purl.obolibrary.org/obo/GAZ_00001106

48. **lk_t0_event**

Name	Description	Link
Not Specified	Time Zero Event (TZ0) is not specified or not received. If no Time Zero Event value is received, then this is the system default value.	http://purl.obolibrary.org/obo/PATO_0000165
Other	Time Zero Event (TZ0) is the some Other time value not in CV Terms.	http://purl.obolibrary.org/obo/PATO_0000165
Time of enrollment	Time Zero Event (TZ0) is the Time of enrollment.	http://purl.obolibrary.org/obo/PATO_0000165
Time of hospital admission	Time Zero Event (TZ0) is the Time of hospital admission	https://ncimeta.nci.nih.gov/ncimbrowser/ConceptReport.jsp?dictionary=NCI%20Metathesaurus&code=C0488561
Time of infection	Time Zero Event (TZ0) is the Time of infection.	http://purl.obolibrary.org/obo/PATO_0000165

Time of initial treatment	Time Zero Event (TZ0) is the Time of initial treatment.	http://purl.obolibrary.org/obo/PATO_0000165
Time of initial vaccine administration	Time Zero Event (TZ0) is the Time of initial vaccine administration.	http://purl.obolibrary.org/obo/PATO_0000165
Time of transplantation	Time Zero Event (TZ0) is the Time of Transplantation.	http://purl.obolibrary.org/obo/PATO_0000165

49. **lk_temperature_unit**

Name	Description	Link
C	Celsius	http://purl.obolibrary.org/obo/UO_0000027
F	Fahrenheit	http://purl.obolibrary.org/obo/UO_0000195
Gy	A SI derived unit of absorbed radiation dose. One gray is equal to an absorbed dose of one joule per kilogram of matter, or to 100 rads.	https://uts.nlm.nih.gov/uts/umls/concept/C0556636
K	Kelvin	http://purl.obolibrary.org/obo/UO_0000012
Not Specified	No value provided. Not stated explicitly or in detail.	http://purl.obolibrary.org/obo/NCIT_C38046

50. **lk_time_unit**

Name	Description	Link
d.p.c.	Unit of Days Post Coitum (d.p.c.).	https://en.wikipedia.org/wiki/Days_post_coitum
Days	Unit of Days.	http://purl.obolibrary.org/obo/NCIT_C25301
Hours	Unit of Hours.	http://purl.obolibrary.org/obo/NCIT_C25529

Minutes	Unit of Minutes.	http://purl.obolibrary.org/obo/NCIT_C48154
Months	Unit of Months.	http://purl.obolibrary.org/obo/NCIT_C29846
Not Specified	Unit is not specified or not received. If no Unit value is received, then this is the system default value.	
Seconds	Unit of Seconds.	http://purl.obolibrary.org/obo/NCIT_C25666
Weeks	Unit of Weeks.	http://purl.obolibrary.org/obo/NCIT_C29844
Years	Unit of Years.	http://purl.obolibrary.org/obo/NCIT_C29848

51. **lk_titer_unit**

Name	Description	Link
titer_unit_preferred		
Antibody titer	Antibody titer is a titer of antibody that shows how much antibody an organism has produced that recognizes a particular epitope, expressed as the greatest dilution ratio (or its reciprocal) that still gives a positive result. ELISA is a common means of determining antibody titers.	http://purl.obolibrary.org/obo/VO_0000150
Gy	A SI derived unit of absorbed radiation dose. One gray is equal to an absorbed dose of one joule per kilogram of matter, or to 100 rads.	https://uts.nlm.nih.gov/uts/umls/concept/C0556636
Not Specified	No value provided. Not stated explicitly or in detail.	http://purl.obolibrary.org/obo/NCIT_C38046

titer	A titer (or titre) is a measure of concentration. Titer testing employs serial dilution to obtain approximate quantitative information from an analytical procedure that inherently only evaluates as positive or negative. The titer corresponds to the highest dilution factor that still yields a positive reading; for example, positive readings in the first 8 serial twofold dilutions translate into a titer of 1:256.	http://purl.obolibrary.org/obo/VO_0000555

52. **lk_transcript_type**

Name	Description	Link
transcript_preferred		
lincRNA	Long non-coding RNAs (long ncRNAs, lncRNA) are a type of RNA, defined as being transcripts with lengths exceeding 200 nucleotides that are not translated into protein. This somewhat arbitrary limit distinguishes long ncRNAs from small non-coding RNAs such as microRNAs (miRNAs), small interfering RNAs (siRNAs), Piwi-interacting RNAs (piRNAs), small nucleolar RNAs (snoRNAs), and other short RNAs. Long intervening/intergenic noncoding RNAs (lincRNAs) are sequences of lncRNA which do not overlap protein-coding genes.	https://en.wikipedia.org/wiki/Long_non-coding_RNA
mRNA	In molecular biology, messenger ribonucleic acid (mRNA) is a single-stranded molecule of RNA that corresponds to the genetic sequence of a gene, and is read by a ribosome in the process of synthesizing a protein.	https://en.wikipedia.org/wiki/Messenger_RNA

snRNA	Small nuclear RNA (snRNA) is a class of small RNA molecules that are found within the splicing speckles and Cajal bodies of the cell nucleus in eukaryotic cells. The length of an average snRNA is approximately 150 nucleotides. They are transcribed by either RNA polymerase II or RNA polymerase III. Their primary function is in the processing of pre-messenger RNA (hnRNA) in the nucleus. They have also been shown to aid in the regulation of transcription factors (7SK RNA) or RNA polymerase II (B2 RNA), and maintaining the telomeres. https://en.wikipedia.org/wiki/Small_nuclear_RNA	

53. **lk_unit_of_measure**

Name	Description	Link
unit_of_measure_preferred		
AFU	Arbitrary Fluorescence Units	http://purl.obolibrary.org/obo/NCIT_C77534
AI	Antibody Index	https://www.aacc.org/publications/cln/articles/2014/june/ana-testing
Antibody titer	Antibody titer is a titer of antibody that shows how much antibody an organism has produced that recognizes a particular epitope, expressed as the greatest dilution ratio (or its reciprocal) that still gives a positive result. ELISA is a common means of determining antibody titers.	http://purl.obolibrary.org/obo/VO_0000150
Arithmetic Mean Fluorescence Intensity Unit (aMFI)	Arithmetic Mean Fluorescence Intensity Unit	http://purl.obolibrary.org/obo/NCIT_C163562
AU/ml	Unit of measure of potency of allergenic product expressed as a number of allergy units per one milliliter of formulation.	http://purl.obolibrary.org/obo/NCIT_C70504
Base Pair Unit	The unit of measure for the number of paired nucleotides in a DNA or RNA sequence. UMLS CUI:C4318478, has exact synonym: Base Pair Unit; BASE PAIRS; BP; {BP}	http://purl.obolibrary.org/obo/NCIT_C132477

BCLC Stage	A stage for hepatocellular carcinoma defined according to the Barcelona Clinic Liver Cancer (BCLC) criteria.	http://purl.obolibrary.org/obo/NCIT_C115134
Beats per Minute	The number of heartbeats measured per minute time.	http://purl.obolibrary.org/obo/NCIT_C49673
Body Mass Index Finding	The result of a body mass index measurement. [Definition Source: NCI]	http://purl.obolibrary.org/obo/NCIT_C138901
Boolean	The type of an expression with two possible values, "true" and "false".	http://purl.obolibrary.org/obo/NCIT_C45254
Breaths per Minute	The number of breaths (inhalation and exhalation) taken per minute time.	http://purl.obolibrary.org/obo/NCIT_C49674
C	Celsius	http://purl.obolibrary.org/obo/UO_0000027
Capsule Dosing Unit	A dosing unit equal to the amount of active ingredient(s) contained in a capsule.	http://purl.obolibrary.org/obo/NCIT_C48480
categorical	Categorical data are types of data which may be divided into groups.	http://purl.obolibrary.org/obo/NCIT_C142412
cells	cell count	http://purl.obolibrary.org/obo/NCIT_C48938
cells/kg body weight	Cells per kg body weight	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4138781/
cells/ml	A unit of cell concentration expressed in cells per unit of volume equal to one milliliter.	http://purl.obolibrary.org/obo/NCIT_C74919
cells/ul	A unit of cell concentration expressed as a number of cells per unit volume equal to one microliter.	http://purl.obolibrary.org/obo/NCIT_C67242
CFU	The minimum number of separable cells which is able to produce a detectable colony of progeny.	https://ontobee.org/ontology/NCIT?iri=http://purl.obolibrary.org/obo/NCIT_C68742

CFU/ml	A derived unit of viable cell concentration defined as the number of colony forming units in one milliliter of substance	http://purl.obolibrary.org/obo/NCIT_C68902
cm	A basic unit of length in the former CGS version of metric system, equal to one hundredth of a meter or approximately 0.393 700 787 inch.	http://purl.obolibrary.org/obo/NCIT_C49668
Count	Determining the number or amount of something.	http://purl.obolibrary.org/obo/NCIT_C25463
Cq	Threshold cycle (or Ct or Cq) is a count which is defined as the fractional PCR cycle number at which the reporter fluorescence is greater than the threshold in the context of the RT-qPCR assay.	http://purl.obolibrary.org/obo/STATO_0000190
Ct	Threshold cycle (or Ct or Cq) is a count which is defined as the fractional PCR cycle number at which the reporter fluorescence is greater than the threshold in the context of the RT-qPCR assay.	http://purl.obolibrary.org/obo/STATO_0000190
Day	The time for Earth to make a complete rotation on its axis; ordinarily divided into twenty-four hours, equal to 86 400 seconds. This also refers to a specific day.	http://purl.obolibrary.org/obo/NCIT_C25301
Delta Ct	Difference between the target gene and the reference gene.	http://www.ncbi.nlm.nih.gov/pubmed/11846609
Delta Delta Ct	Difference between the Delta Ct target gene of the treated sample and the Delta Ct of the target gene of the untreated sample.	http://www.ncbi.nlm.nih.gov/pubmed/11846609
DK units/ml	The NIDDK calibrators were tested together with dilutions of the WHO reference serum using harmonized assays on five occasions in the BDC, Bristol, and Munich laboratories and reported as WHO units/ml by calibration as previously described. For each of the NIDDK calibrators, the median value of the WHO units/ml obtained for the 15 measurements was assigned as its calibrator unit. The assigned units were termed digestive and kidney units (DK units)/ml.	https://repository.niddk.nih.gov/studies/aab-calibrators/
Donor Information	Information about the donor.	http://purl.obolibrary.org/obo/NCIT_C158611

Dose	A quantity of an agent (such as substance or energy) administered, taken, or absorbed at one time.	http://purl.obolibrary.org/obo/NCIT_C25488
F	Fahrenheit	http://purl.obolibrary.org/obo/UO_0000195
FPKM	Fragments Per Kilobase Million: Normalized expression value of a given gene as measured by paired-end RNA sequencing	http://www.ncbi.nlm.nih.gov/pubmed/22872506
g/dl	A unit of mass concentration defined as the concentration of one gram of a substance per unit volume of the mixture equal to one deciliter (100 milliliters). The concept also refers to the metric unit of mass density (volumic mass) defined as the density of substance which mass equal to one gram occupies the volume one deciliter.	http://purl.obolibrary.org/obo/NCIT_C64783
g/l	grams per liter	http://purl.obolibrary.org/obo/UO_0000175
Gender	Characteristics of people that are socially constructed, including norms, behaviors, and roles based on sex. As a social construct, gender varies from society to society and can change over time. (Adapted from WHO.)	http://purl.obolibrary.org/obo/NCIT_C17357
Geometric Mean Fluorescence Intensity Unit (gMFI)	A unit of measure for the geometric mean fluorescence intensity.	http://purl.obolibrary.org/obo/NCIT_C163563
gm	gram	http://purl.obolibrary.org/obo/UO_0000021
Grade	A position on a scale of intensity or amount or quality.	http://purl.obolibrary.org/obo/NCIT_C48309
Gy	A SI derived unit of absorbed radiation dose. One gray is equal to an absorbed dose of one joule per kilogram of matter, or to 100 rads.	https://uts.nlm.nih.gov/uts/umls/concept/C0556636
HAU	hemagglutination units	http://en.wikipedia.org/wiki/Virus_quantification

Hour	A unit measure of time equal to 3,600 seconds or 60 minutes. It is approximately 1/24 of a median day.	http://purl.obolibrary.org/obo/NCIT_C25529
in	A traditional unit of length equal to 1/12 of a foot or 2.54 centimeters.	http://purl.obolibrary.org/obo/NCIT_C48500
IU	The unitage assigned by the WHO to International Biological Standards - substances, classed as biological according to the criteria provided by WHO Expert Committee on Biological Standardization (e.g. hormones, enzymes, and vaccines), to enable the results of biological and immunological assay procedures to be expressed in the same way throughout the world. The definition of an international unit is generally arbitrary and technical, and has to be officially approved by the International Conference for Unification of Formulae.	http://purl.obolibrary.org/obo/NCIT_C48579
iu/l	Unit of arbitrary substance concentration (biologic activity concentration) defined as the concentration of one international unit per one liter of the system volume.	http://purl.obolibrary.org/obo/NCIT_C67376
IU/ml	A unit of arbitrary substance concentration (biologic activity concentration) defined as the concentration of one international unit per one milliliter of system volume.	http://purl.obolibrary.org/obo/NCIT_C67377
K	Kelvin	http://purl.obolibrary.org/obo/UO_0000012
Kallikrein Inactivator Unit per Milliliter	An arbitrary unit of a kallikrein inactivator concentration equal to the concentration at which one milliliter of the mixture contains one unit of the kallikrein inactivator.	http://purl.obolibrary.org/obo/NCIT_C73531
kg	A basic SI unit of mass. It is defined as the mass of an international prototype in the form of a platinum-iridium cylinder kept at Sevres in France. A kilogram is equal to 1,000 grams and 2.204 622 6 pounds.	http://purl.obolibrary.org/obo/NCIT_C28252

kg/m2	Kilogram per Square Meter, the SI derived unit of spread rate of a substance by mass, used also as a measure of area density and as a dose calculation unit.	http://purl.obolibrary.org/obo/NCIT_C49671
l	The non-SI unit of volume accepted for use with the SI. One liter is equal to cubic decimeter, or one thousandth of cubic meter, or 1000 cubic centimeters, or approximately 61.023 744 cubic inches.	http://purl.obolibrary.org/obo/NCIT_C48505
L/sec	Liter per Second: A metric unit of volumetric flow rate defined as the rate at which one liter of matter crosses a given surface during the period of time equal to one second.	http://purl.obolibrary.org/obo/NCIT_C67390
m	A unit of linear measure in the metric system, one of the seven base units of the International System of Units (Systeme International d'Unites, SI). A meter is defined as the length of the path traveled by light in a vacuum during a time interval of 1/299 792 458 of a second and is equal to 1.093 61 yards. [Definition Source: NCI]	http://purl.obolibrary.org/obo/NCIT_C41139
Mean Fluorescence Intensity Unit (MFI,FIU)	A unit of measure for the mean fluorescence intensity (when the mathematic calculation is unspecified or unknown).	http://purl.obolibrary.org/obo/NCIT_C163046
Median Fluorescence Intensity Unit (MdFI)	A unit of measure equal to the median fluorescence intensity of a log-normal distribution of fluorescence signals.	http://purl.obolibrary.org/obo/NCIT_C96687
MFI at 90th percentile	Mean Fluorescence Intensity at 90th Percentile. MFI : A unit of measure equal to the geometric mean fluorescence intensity of a log-normal distribution of fluorescence signals.	http://purl.obolibrary.org/obo/NCIT_C96687
mg	milligram	http://purl.obolibrary.org/obo/UO_0000022
mg/dl	A unit of mass concentration defined as the concentration of one milligram of a substance in unit volume of the mixture equal to one cubic deciliter or 100 cubic centimeters. It is also a unit of mass density (volumic mass) defined as the density of substance which mass equal to one milligram occupies the volume one cubic deciliter or 100 cubic centimeters.	http://purl.obolibrary.org/obo/NCIT_C67015

mg/l	A metric unit of mass concentration defined as the concentration of one gram of a substance per unit volume of the mixture equal to one cubic meter. The concept also refers to the metric unit of mass density (volumic mass) defined as the density of a substance which mass equal to one gram occupies the volume of one cubic meter.	http://purl.obolibrary.org/obo/NCIT_C64572
mg/ml	microgram per milliliter	http://purl.bioontology.org/ontology/SNOMEDCT/258798001
Milligram per Kilogram	A unit of a mass fraction expressed as a number of milligrams of substance per kilogram of mixture. The unit is also used as a dose calculation unit. Has exact synonym: Attogram per Picogram; Milligram/Kilogram; Yoctogram per Attogram; milligram per kilogram; fg/ng; Femtogram per Nanogram; ng/mg; milligram(s)/kilogram; pg/mcg; ag/pg; Microgram per Gram; Nanogram per Milligram; Zeptogram per Femtogram; mcg/g; yg/ag; Picogram per Microgram; mg/kg; ug/g; zg/fg; Milligram per Kilogram; pg/ug; mg/kilo	http://purl.obolibrary.org/obo/NCIT_C67401
miu/ml	Unit of arbitrary substance concentration (biologic activity concentration) defined as the concentration of one international unit per one liter of the system volume.	http://purl.obolibrary.org/obo/NCIT_C67376
ml	milliliter	http://purl.obolibrary.org/obo/UO_0000098
mL/min	Milliliter per Minute: A metric unit of volumetric flow rate defined as the rate at which one milliliter of matter crosses a given surface during the period of time equal to one minute.	http://purl.obolibrary.org/obo/NCIT_C64777

mL/min/(173/100).m2	Milliliter per Minute per 1.73 m2 of Body Surface Area: A unit used in the calculation of a rate of the substance removal from the body (such as creatinine clearance) for the measurement of renal excretory function, with the applied correction factor for body size. It is also used as a dose delivery rate calculation unit equal to the rate, at which one milliliter of medication is delivered during a period of time equal to one minute per 1.73 square meters of body surface area.	http://purl.obolibrary.org/obo/NCIT_C67412
mL/min/mmHg	Milliliter per Minute per Millimeters of Mercury: A unit for measuring a pulmonary diffusing capacity expressed in units of gas flow rate (in milliliters per minute) per a unit of pressure (in torrs).	http://purl.obolibrary.org/obo/NCIT_C67417
mm	A metric unit of length equal to one thousandth of a meter (10E-3 meter) or approximately 0.03937 inch. [Definition Source: NCI]	http://purl.obolibrary.org/obo/NCIT_C28251
mmHg	Millimeter of Mercury: A non-SI unit of pressure equal to 133,332 Pa or 1.316E10-3 standard atmosphere. Use of this unit is generally deprecated by ISO and IUPAC.	http://purl.obolibrary.org/obo/NCIT_C49670
MOI	multiplicity of infection	http://en.wikipedia.org/wiki/Multiplicity_of_infection
Month	One of the 12 divisions of a year as determined by a calendar. It corresponds to the unit of time of approximately to one cycle of the moon's phases, about 30 days or 4 weeks.	http://purl.obolibrary.org/obo/NCIT_C29846
Multidimensional Fatigue Inventory	A 20-item self-report instrument designed to measure fatigue. It covers the following dimensions: General Fatigue, Physical Fatigue, Mental Fatigue, Reduced Motivation and Reduced Activity.	http://purl.obolibrary.org/obo/NCIT_C54719
ng	nanogram	http://purl.obolibrary.org/obo/UO_0000024

ng/dl	A unit of mass concentration defined as the concentration of one nanogram of a substance per unit volume of the mixture equal to one deciliter. The concept also refers to the unit of mass density (volumic mass) defined as the density of substance which mass equal to one nanogram occupies the volume of one deciliter.	http://purl.obolibrary.org/obo/NCIT_C67326
ng/ml	nanogram per milliliter	http://purl.bioontology.org/ontology/SNOMEDCT/258806002
ng/nl	nanogram per nanoliter	
ng/ul	nanogram per microliter	http://purl.bioontology.org/ontology/SNOMEDCT/272082007
nl	nanoliter	http://purl.obolibrary.org/obo/UO_0000102
nM	nanomolar	http://purl.obolibrary.org/obo/UO_0000065
Normalized Fluorescence Intensity Unit	A relative fluorescence intensity unit that is adjusted to a reference standard.	http://purl.obolibrary.org/obo/NCIT_C154680
Not Specified	No value provided. Not stated explicitly or in detail.	http://purl.obolibrary.org/obo/NCIT_C38046
NPX	NPX, Normalized Protein eXpression, is Olink's arbitrary unit which is in Log2 scale. It is calculated from Ct values and data pre-processing (normalization) is performed to minimize both intra- and inter-assay variation. NPX data allows users to identify changes for individual protein levels across their sample set, and then use this data to establish protein signatures. The NPX scale is inverted compared to that of Ct. This means that a high NPX value equals a high protein concentration. Because NPX is in a log2 scale, a 1 NPX difference means a doubling of protein concentration. If needed NPX values can be converted into linear scale: 2^NPX= linear NPX.	https://www.olink.com/question/what-is-npx/

Number of Episodes	A measurement of the total number of events that have occurred.	http://purl.obolibrary.org/obo/NCIT_C124281
optical density	The measurement of the light transmitted through a sample for a given wavelength. [database_cross_reference: ISBN:038733341X]	http://purl.obolibrary.org/obo/CHMO_0002039
percentage	A fraction or ratio with 100 understood as the denominator. e.g. percentage of a cell population of interest within a parent population	http://purl.obolibrary.org/obo/NCIT_C25613
PFU	Plaque-forming unit. A measure of viable infectious entities (e.g. viral particles or group of particles) in the specimen or product defined as the smallest quantity that can produce a cytopathic effect in the host cell culture challenged with the defined inoculum, visible under the microscope and/or to the naked eye as a plaque. A number of plaque forming units (PFU) per unit volume is a conventional way to refer the titer of an infective entity in a specimen or preparation.	http://purl.obolibrary.org/obo/NCIT_C67264
PFUe	Plaque-forming unit equivalents	http://purl.obolibrary.org/obo/NCIT_C67264
pg	picogram	http://purl.obolibrary.org/obo/UO_0000025
pg/mg creatinine	Protein/Creatinine [Ratio] in Urine	http://purl.obolibrary.org/obo/NCIT_C85780
pg/ml	picogram per milliliter	http://purl.obolibrary.org/obo/NCIT_C67327
pg/nl	picogram per nanoliter	
pg/ul	picogram per microliter	http://purl.obolibrary.org/obo/NCIT_C67306
pl	picoliter	http://purl.obolibrary.org/obo/UO_0000103
pM	picomolar	http://purl.obolibrary.org/obo/UO_0000066

Point	A numeric unit used to quantify a score.	http://purl.obolibrary.org/obo/NCIT_C113499
Pound	The traditional unit of mass. By international agreement, one avoirdupois pound is equal to exactly 0.453 592 37 kilogram, 16 ounces, or 1.215 28 troy pounds.	http://purl.obolibrary.org/obo/NCIT_C48531
Ratio	Quotient of quantities of the same kind for different components within the same system.	http://purl.obolibrary.org/obo/NCIT_C44256
Relative Fluorescence Intensity Unit	A unit of measurement that estimates the size or amount of material in a sample by normalizing its luminescence to that of a reference standard.	http://purl.obolibrary.org/obo/NCIT_C77535
RPKM	Reads Per Kilobase Million: Normalized expression value of a given gene as measured by single-end RNA sequencing	http://www.ncbi.nlm.nih.gov/pubmed/22872506
Scale	An ordered reference standard used to measure incremental changes.	http://purl.obolibrary.org/obo/NCIT_C25664
Schirmer Test Wetting	A test used to determine the amount of tears collected on a filter paper strip in 5 minutes.	http://purl.obolibrary.org/obo/NCIT_C75526
Score	A number or range of numeric values measuring performance, function, quality, or ability.	http://purl.obolibrary.org/obo/NCIT_C25338
stim/unstim fold change	Fold change comparing stimulated vs unstimulated sample	https://en.wikipedia.org/wiki/Fold_change
TCID50	mean tissue culture infective dose	http://en.wikipedia.org/wiki/Virus_quantification
Thousand Cells per Microliter	A unit of cell concentration expressed as a number of cells in thousands per unit volume equal to one microliter. Synonyms: 10E3 Cells/uL, Kcells/ul.	https://uts.nlm.nih.gov/uts/umls/concept/C1883312

titer	A titer (or titre) is a measure of concentration. Titer testing employs serial dilution to obtain approximate quantitative information from an analytical procedure that inherently only evaluates as positive or negative. The titer corresponds to the highest dilution factor that still yields a positive reading; for example, positive readings in the first 8 serial twofold dilutions translate into a titer of 1:256.	http://purl.obolibrary.org/obo/VO_0000555
TPM	Transcripts per million reads- Measurement of mRNA abundance using RNA-seq data	http://www.ncbi.nlm.nih.gov/pubmed/22872506
ug	microgram	http://purl.obolibrary.org/obo/UO_0000023
ug/dl	A unit of mass concentration defined as the concentration of one microgram of a substance per unit volume of the mixture equal to one deciliter. The concept also refers to the unit of mass density (volumic mass) defined as the density of substance which mass equal to one microgram occupies the volume one deciliter.	http://purl.obolibrary.org/obo/NCIT_C67305
ug/kg	Microgram per Kilogram: A unit of a mass fraction expressed as a number of micrograms of substance per kilogram of mixture. The unit is also used as a dose calculation unit.	http://purl.obolibrary.org/obo/NCIT_C67396
ug/l	A unit of mass concentration defined as the concentration of one microgram of a substance per unit volume of the mixture equal to one liter. The concept also refers to the unit of mass density (volumetric mass) defined as the density of a substance which mass equal to one microgram occupies the volume of one liter.	http://purl.obolibrary.org/obo/NCIT_C67306
ug/ml	microgram per milliliter	http://purl.bioontology.org/ontology/SNOMEDCT/258801007
ug/ul	microgram per microliter	http://purl.obolibrary.org/obo/NCIT_C42576

ugEq/g	Microgram Equivalents Per Gram: A concentration unit measured as a number of microgram equivalents per gram of substance.	http://purl.obolibrary.org/obo/NCIT_C166087
uiu/ml	Unit of arbitrary substance concentration (biologic activity concentration) defined as the concentration of one millionth of international unit per one milliliter of system volume.	http://purl.obolibrary.org/obo/NCIT_C67405
ul	microliter	http://purl.obolibrary.org/obo/UO_0000101
uM	micromolar	http://purl.bioontology.org/ontology/SNOMEDCT/258814008
umol/l	A unit of concentration (molarity unit) equal to one one-millionth of a mole (10E-6 mole) of solute per one liter of solution.	http://purl.obolibrary.org/obo/NCIT_C48508
Unit per Gram	An arbitrary unit of substance content expressed in unit(s) per gram.	http://purl.obolibrary.org/obo/NCIT_C77606
units/ml	Enzyme Unit per Milliliter. Unit of catalytic activity concentration defined as activity equal to one enzyme unit per one milliliter of system volume.	http://purl.bioontology.org/ontology/SNOMEDCT/259002007
Week	Any period of seven consecutive days.	http://purl.obolibrary.org/obo/NCIT_C29844
Year	A period of time that it takes for Earth to make a complete revolution around the sun, approximately 365 days; a specific one year period.	http://purl.obolibrary.org/obo/NCIT_C29848
Yes, No, or Unknown Response	A response or indicator that can have a value of yes, no, or unknown.	http://purl.obolibrary.org/obo/NCIT_C38148
Z-Score	A method for converting an individual score into a standard form. The z-score indicates how far and in what direction an item deviates from its distributions mean, expressed in units of standard deviation. Calculation of a z-score requires knowledge about the populations standard deviation and mean.	http://purl.obolibrary.org/obo/NCIT_C68741

54. **lk_virus_strain**

Name	Description	Link	ID
virus_strain_preferred			
A/Anhui/1/2005	A/Anhui/1/2005	https://www.fludb.org/brc/fluStrainDetails.spg?strainName=A/Anhui/1/2005(H5N1)&decorator=influenza	0
A/Brisbane/02/2018	A/Brisbane/02/2018	https://gsrs.ncats.nih.gov/app/substance/GV04CMM4LO	0
A/Brisbane/10/2007	The virus strain name is: 'A/Brisbane/10/2007'. The virus name : 'H3N2', and season_list is: '2008-2009,2009-2010'.	http://www.fda.gov/BiologicsBloodVaccines/GuidanceComplianceRegulatoryInformation/Post-MarketActivities/LotReleases/ucm062928.htm	476294
A/Brisbane/59/2007	The virus strain name is: 'A/Brisbane/59/2007'. The virus name : 'H1N1', and season_list is: '2008-2009,2009-2010'.	http://www.fda.gov/BiologicsBloodVaccines/GuidanceComplianceRegulatoryInformation/Post-MarketActivities/LotReleases/ucm062928.htm	504904

A/California/04/2009	The virus strain name is: 'A/California/04/2009'. The virus name : 'H1N1', and season_list is: 'NA'.	https://www.fludb.org/brc/fluStrainDetails.spg?strainName=A/California/04/2009(H1N1)	0
A/California/07/2004	A/California/07/2004	https://www.fludb.org/brc/fluStrainDetails.spg?strainName=A/California/07/2004(H3N2)&decorator=influenza	479983
A/California/7/2009	The virus strain name is: 'A/California/7/2009'. The virus name : 'H1N1', and season_list is: '2010-2011,2011-2012,2012-2013'.	http://www.fda.gov/BiologicsBloodVaccines/GuidanceComplianceRegulatoryInformation/Post-MarketActivities/LotReleases/ucm062928.htm	1316510
A/Egypt/306	A/Egypt/306	https://www.fludb.org/brc/fluStrainDetails.spg?strainName=A/Egypt/306(H1N1)&decorator=influenza	0
A/Hong Kong/4801/2014	A/Hong Kong/4801/2014	https://www.sinobiological.com/research/virus/influenza-a-hong-kong-4801-2014	0

A/Indonesia/5/2005	A/Indonesia/5/2005(H5N1)	https://www.fludb.org/brc/fluStrainDetails.spg?strainName=A/Indonesia/5/2005&decorator=influenza	400788
A/Kansas/14/2017	A/Kansas/14/2017	https://www.fludb.org/brc/fluStrainDetails.spg?strainName=A/Kansas/14/2017(H3N2)&decorator=influenza	11320
A/Michigan/45/2015	A/Michigan/45/2015	https://www.fludb.org/brc/fluStrainDetails.spg?strainName=A/Michigan/45/2015(H1N1)&decorator=influenza	1777792

A/New Caledonia/20/1999	The virus strain name is: 'A/New Caledonia/20/1999'. The virus name : 'H1N1', and season_list is: '2005-2006, 2006-2007'.	http://www.fda.gov/BiologicsBloodVaccines/GuidanceComplianceRegulatoryInformation/Post-MarketActivities/LotReleases/ucm062928.htm; https://www.fludb.org/brc/fluStrainDetails.spg?strainName=A/New Caledonia/20/1999&decorator=influenza	381512
A/Perth/16/2009	The virus strain name is: 'A/Perth/16/2009'. The virus name : 'H3N2', and season_list is: '2010-2011,2011-2012'.	http://www.fda.gov/BiologicsBloodVaccines/GuidanceComplianceRegulatoryInformation/Post-MarketActivities/LotReleases/ucm062928.htm	654811
A/Perth/19/2009	A/Perth/19/2009	https://www.thelancet.com/journals/ebiom/article/PIIS2352-3964(16)30172-4/fulltext	0
A/Puerto Rico/8/1934	A/Puerto Rico/8/1934(H1N1)	http://purl.obolibrary.org/obo/NCBITaxon_183764	211044

A/Solomon Islands/3/2006	The virus strain name is: 'A/Solomon Islands/3/2006'. The virus name : 'H1N1', and season_list is: '2007-2008'.	http://www.fda.gov/BiologicsBloodVaccines/GuidanceComplianceRegulatoryInformation/Post-MarketActivities/LotReleases/ucm062928.htm	464623
A/South Dakota/06/2007	The virus strain name is: 'A/South Dakota/06/2007'. The virus name : 'H1N1', and season_list is: '2009 Southern Hemisphere'.	https://www.fludb.org/brc/fluStrainDetails.spg?strainName=A/South%20Dakota/06/2007(H1N1)&decorator=influenza&context=162076314227 0	0
A/Switzerland/9715293/2013	A/Switzerland/9715293/2013	https://www.sinobiological.com/recombinant-proteins/h3n2-hemagglutinin-ha-40497-vnab	0
A/Texas/50/2012	The virus strain name is: 'A/Texas/50/2012'. The virus name : 'H3N2', and season_list is: '2013-2014, 2014-2015'.	https://www.fludb.org/brc/fluStrainDetails.spg?strainName=A/Texas/50/2012(H3N2)&decorator=influenza	0

A/Turkey/15/2006	A/Turkey/15/2006	https://www.fludb.org/brc/fluStrainDetails.spg?strainName=A/Turkey/15/2006(H5N1)&decorator=influenza	0
A/Uruguay/716/2007	The virus strain name is: 'A/Uruguay/716/2007'. The virus name : 'H3N2', and season_list is: '2008-2009,2009-2010'.	http://www.fda.gov/BiologicsBloodVaccines/GuidanceComplianceRegulatoryInformation/Post-MarketActivities/LotReleases/ucm062928.htm; https://www.fludb.org/brc/fluStrainDetails.spg?strainName=A/Uruguay/716/2007&decorator=influenza	0
A/Victoria/3/1975	The virus strain name is: 'A/Victoria/3/1975'. The virus name : 'H3N2', and season_list is: 'NA'.	https://www.fludb.org/brc/fluStrainDetails.spg?strainName=A%2FVictoria%2F3%2F1975%28H3N2%29&decorator=influenza	392809

A/Victoria/361/2011	The virus strain name is: 'A/Victoria/361/2011'. The virus name : 'H3N2', and season_list is: '2012-2013'.	http://www.fda.gov/BiologicsBloodVaccines/GuidanceComplianceRegulatoryInformation/Post-MarketActivities/LotReleases/ucm062928.htm	1268360
A/Vietnam/1196/2004	A/Vietnam/1196/2004	https://www.fludb.org/brc/fluSegmentDetails.spg?ncbiGenomicAccession=AY526747&decorator=influenza	0
A/Wisconsin/67/2005	The virus strain name is: 'A/Wisconsin/67/2005'. The virus name : 'H3N2', and season_list is: '2006-2007,2007-2008'.	http://www.fda.gov/BiologicsBloodVaccines/GuidanceComplianceRegulatoryInformation/Post-MarketActivities/LotReleases/ucm062928.htm	393902
A/X-31	A/X-31(H3N2)	http://purl.obolibrary.org/obo/NCBITaxon_132504	132504
B/Brisbane/03/2007	B/Brisbane/03/2007	http://purl.obolibrary.org/obo/NCBITaxon_1600158	1600158

B/Brisbane/3/2007	B/Brisbane/3/2007	https://www.fludb.org/brc/fluStrainDetails.spg?strainName=B/Brisbane/3/2007&decorator=influenza&context=1621535432290	1600158
B/Brisbane/60/2008	The virus strain name is: 'B/Brisbane/60/2008'. The virus name : 'B', and season_list is: '2009-2010'.	http://www.fda.gov/BiologicsBloodVaccines/GuidanceComplianceRegulatoryInformation/Post-MarketActivities/LotReleases/ucm062928.htm; https://www.viprbrc.org/brc/fluStrainDetails.spg?strainName=B/Brisbane/60/2008&decorator=influenza	604436
B/Colorado/06/2017	B/Colorado/06/2017	https://www.fludb.org/brc/fluStrainDetails.spg?strainName=B/Colorado/06/2017&decorator=influenza	1987257
B/Florida/04/2006	B/Florida/04/2006	https://www.fludb.org/brc/fluSegmentDetails.spg?ncbiGenomicAccession=EU515992&decorator=influenza	461739

B/Florida/4/2006	The virus strain name is: 'B/Florida/4/2006'. The virus name : 'B', and season_list is: '2008-2009'.	http://www.fda.gov/BiologicsBloodVaccines/GuidanceComplianceRegulatoryInformation/Post-MarketActivities/LotReleases/ucm062928.htm	461739
B/Lee/1940	The virus strain name is: 'B/Lee/1940'. The virus name : 'B', and season_list is: 'NA'.	https://www.fludb.org/brc/fluStrainDetails.spg?strainName=B%2FLee%2F1940&decorator=influenza	0
B/Malaysia/2506/2004	The virus strain name is: 'B/Malaysia/2506/2004'. The virus name : 'B', and season_list is: '2006-2007,2007-2008'.	http://www.fda.gov/BiologicsBloodVaccines/GuidanceComplianceRegulatoryInformation/Post-MarketActivities/LotReleases/ucm062928.htm	464417
B/Massachusetts/02/2012	The virus strain name is: 'B/Massachusetts/02/2012'. The virus name : 'B', and season_list is: '2012-2013'.	http://www.fda.gov/BiologicsBloodVaccines/GuidanceComplianceRegulatoryInformation/Post-MarketActivities/LotReleases/ucm062928.htm	1321139

B/Massachusetts/2/2012	B/Massachusetts/2/2012	https://www.fludb.org/brc/fluStrainDetails.spg?strainName=B/Massachusetts/02/2012&decorator=influenza	1321139
B/Phuket/3073/2013	B/Phuket/3073/2013	https://nibsc.org/documents/ifu/19-196.pdf	0
B/Shanghai/361/2002	The virus strain name is: 'B/Shangai/361/2002'. The virus name : 'B', and season_list is: '2005-2006'.	http://www.fda.gov/BiologicsBloodVaccines/GuidanceComplianceRegulatoryInformation/Post-MarketActivities/LotReleases/ucm062928.htm	335812
B/Wisconsin/01/2010	The virus strain name is: 'B/Wisconsin/01/2010'. The virus name : 'B', and season_list is: '2012-2013'.	http://www.fda.gov/BiologicsBloodVaccines/GuidanceComplianceRegulatoryInformation/Post-MarketActivities/LotReleases/ucm062928.htm	1089607
B/Wisonsin/01/2010	B/Wisonsin/01/2010	https://www.fludb.org/brc/fluStrainDetails.spg?strainName=B/Wisconsin/01/2010&decorator=influenza	1089607

SARS-CoV-2	Severe acute respiratory syndrome coronavirus 2, equivalent: 2019-nCoV	http://purl.obolibrary.org/obo/NCBITaxon_2697049	2697049
SARS-CoV-2 Alpha; B.1.1.7	SARS-CoV-2 Alpha; B.1.1.7	https://cov-lineages.org/lineage.html?lineage=B.1.1.7	0
SARS-CoV-2 Beta; B.1.351	SARS-CoV-2 Beta; B.1.351	https://cov-lineages.org/lineage.html?lineage=B.1.351	0
SARS-CoV-2 Delta; B.1.617.2	SARS-CoV-2 Delta; B.1.617.2	https://cov-lineages.org/lineage.html?lineage=B.1.617.2	0
SARS-CoV-2 Gamma; P.1	SARS-CoV-2 Gamma; P.1	https://cov-lineages.org/lineage.html?lineage=P.1	0
SARS-CoV-2 Lambda; C.37	SARS-CoV-2 Lambda; C.37	https://cov-lineages.org/lineage.html?lineage=C.37	0
SARS-CoV-2 Mu; B.1.621	SARS-CoV-2 Mu; B.1.621	https://cov-lineages.org/lineage.html?lineage=B.1.621	0
SARS-CoV-2 Omicron variant BA.2	SARS-CoV-2 Omicron variant BA.2	https://cov-lineages.org/lineage.html?lineage=BA.2	0
SARS-CoV-2 Omicron variant BA.4	SARS-CoV-2 Omicron variant BA.4	https://cov-lineages.org/lineage.html?lineage=BA.3	0
SARS-CoV-2 Omicron variant BA.5	SARS-CoV-2 Omicron variant BA.5	https://cov-lineages.org/lineage.html?lineage=BA.5	0

SARS-CoV-2 Omicron varient BA.1	SARS-CoV-2 Omicron varient BA.1	https://cov-lineages.org/lineage.html?lineage=BA.1	0
SARS-CoV-2 Omicron; B.1.1.529	SARS-CoV-2 Omicron; B.1.1.529	https://cov-lineages.org/lineage.html?lineage=B.1.1.529	0
SARS-CoV-2 WA1/2020 (D614G variant)	SARS-CoV-2 WA1/2020 (D614G variant)	https://www.ncbi.nlm.nih.gov/biosample/SAMN18527778	0
SARS-COV-2 WUHAN-HU-1 in pseudovirus	SARS-COV-2 WUHAN-HU-1 in pseudovirus	https://www.takarabio.com/products/covid-19-research/sars-cov-2-pseudovirus/wuhan-hu-1	0
SARS-CoV-2 Wuhan/2020	SARS-CoV-2 Wuhan/2020	https://www.ncbi.nlm.nih.gov/nuccore/MN908947	0
SARS-CoV-2 Zeta; P.2	SARS-CoV-2 Zeta; P.2	https://cov-lineages.org/lineage.html?lineage=P.2	0
SARS-like coronavirus WIV1	SARS-like coronavirus WIV1	https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=1415852	1415852
Yellow fever virus 17D	Yellow fever virus 17D	http://purl.obolibrary.org/obo/NCBITaxon_11090	11090

55. **lk_yes_no**

Name	Description

No	No
Yes	Yes