Consortium for Advancing Management and Prevention of Cancer in People with HIV Data Commons (AMC-DC)

Data Standardization Plan for Cytokine Measurements

Template v2.0; 07APR2021

Assay Plan v3.0; 28OCT2026

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1. GLOSSARY

Data Formats: A collection of requirements / templates to ensure that the data adheres to a certain standard including minimal required data elements, accepted values, control vocabulary and/or ontologies to be used for certain fields.

Meta data: Collection of data to be collected about the data. This includes information about each field to be collected for a certain assay, experimental information such as instrument, instrument configuration, measurement unit/description, descriptions of the file collection, and other information that is valuable for analysis. Minimal meta data descriptors are a subset of meta data that are considered to be essential.

Operations and Data Management Center (ODMC): provides operational, logistical, communications, contracting, protocol development, site management, data and specimen management, monitoring, regulatory and medical monitoring support to the AMC.

Statistics and Data Analysis Center (SDAC): provides statistical design and analysis of AMC studies

AMC Network Research Laboratories (NRLs): provide expertise in virology, viral oncology (e.g., KSHV, HPV, EBV), pharmacology, pathology, hematopathology, genomics, and advanced HIV diagnostics for correlative studies in support of AMC clinical trials

Data Standardization Teams: Develop Data Standardization Plans for each assay type specifying expected data pre-processing, sample quality metrics, data formats, data processing workflows, and experimental meta data descriptors.

2. INTRODUCTION

This document outlines specifications for raw data files/formats, data pre-processing, sample quality metrics, and experimental meta data descriptors for the following assays: Cytokines: ELISA Multiplex immunoassays.

Data submitted to the ODMC must follow the standards included in this document. This includes laboratory data generated by AMC network research laboratories (NRLs) and affiliate laboratories.

For each cytokine dataset, the following tables will be provided along with a manifest of the files:

1. Pre-processing workflow steps in [Protocol ID]_[assay]_[date]_workflow.csv, format details in Table 1.
2. Processed data in [Protocol ID]_[assay]_exp_data_.csv, format details in Table 2.
3. Experimental metadata in [Protocol ID]_[assay]_exp_metadata.csv, format details in Table 3.

Multiple complete sets of data files will be provided if testing occurred for multiple different assay types.

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3. RAW DATA FILES AND FORMAT

For cytokine assays, the raw data and standard curve used to determine cytokine concentrations will not be reported to the AMC DC. These materials will be retained by the laboratory performing testing.

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4. LABORATORY DATA PRE-PROCESSING

4.1 Data Pre-Processing Steps

Data will be generated using the BioPlex software. Further details are included in https://resources.rndsystems.com/pdfs/datasheets/luhm000.pdf?v=20230419&_ga=2.188565419.204000402.1681938902-114121003.1681172694&_gac=1.95045998.1681938902.CjwKCAjwov6hBhBsEiwAvrvN6GvuRJS4isXCzQEMMb-OXeIYS4rYhO3RHX729Yd1WE3Ccg5_QR2fLhoChXwQAvD_BwE. Software version will be reported in the [Protocol ID]_[assay]_[date]_workflow.csv table.

Data processing specifications will be reported in the following format. Requirements for collection are noted in the last column titled "Collection Requirement". Data processing specifications will be submitted in a .csv file to the ODMC.

- Filename will be [Protocol ID]_[assay]_[date]_workflow.csv
- The data must have the columns listed exactly as in the "Variable Name" column in the table below. Included values must be included as listed in the "Validation Rules" column in the table below.

Table 1: Variables to be Submitted in [Protocol ID]_[assay]_[date]_workflow.csv

Variable Name	Type	Length	Description	Reference	Validation Rules	Collection Requirement
Protocol	Num	5	Protocol ID	--	Must match ODMC-specified value for the study	Required
Software Version	Num	8,1	Bio-plex Manager v. 6.1	https://www.bio-rad.com/en-us/product/bio-plex-manager-software-standard-edition?ID=5846e84e-03a7-4599-a8ae-7ba5dd2c7684	Expected to have format x.x (e.g., 6.1)	Required

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4.2 Final Laboratory-Processed Data Format

Processed data will be submitted in the following data format. Requirements for collection are noted in the last column titled "Collection Requirement". Laboratory-processed data will be submitted in a .csv files to the ODMC.

- Two files will be submitted for each submission
  - Filename will be [Protocol ID]_[assay]_[date]_exp_data.csv containing data from the multiplex assay machine
  - Filename will be [Protocol ID]_[assay]_[date]_exp_data_limits.csv containing extracted LLOQ and ULOQ values for each analyte.
- The data must have the columns listed exactly as in the "Variable Name" column in the table below. Included values must be included as listed in the "Controlled Vocabulary" and "Validation Rules" columns in the table below.

Table 2: Variables to be Submitted in [Protocol ID]_[assay]_[date]_exp_data.csv

Variable Name	Type	Length	Description	Controlled Vocabulary	Validation Rules	Collection Requirement
Plate ID	Char	75	Plate Number, Run ID, and Protocol	--	***Must be entered at top of spreadsheet***	Required
Acquisition Date	Date	8	Date of test	--	Format is expected to be xx/xx/xxxx (mm/dd/yyyy); ***To be entered at the top of the spreadsheet***	Required
Analyte	Char	30	Biomarker result being reported	*See Appendix I column titled "ACTG Codelist Value"*	Must match one of the values listed in the Controlled Vocabulary column	Required
Type	Char	3	Defining whether the well is a standard or sample			Optional
Well	Char	5	Location of the well			Optional
Description	Char	25	Specimen ID		Must match Specimen ID listed in GlobalTrace	Required

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Variable Name	Type	Length	Description	Controlled Vocabulary	Validation Rules	Collection Requirement
Result	Char	12	Value of analyte in assayed sample.	--	If result is below the LLOQ for the specified assay and run, report result as <[LLOQ value]	Required

Table 3: Variables to be Submitted in [Protocol ID]_[assay]_[date]_exp_data_limits.csv

Variable Name	Type	Length	Description	Controlled Vocabulary	Validation Rules	Collection Requirement
Protocol	Num	5	Protocol ID	--	Must match ODMC-specified value for the study	Required
Run ID	Char	2	To identify duplicate or repeat runs	--	--	Required if there are records with duplicate key fields
Participant ID	Num	13	AMC study participant ID	--	Match list of enrolled participants from ODMC	Optional
Visit Number	Num	3	Study visit number	--	Match list of available visit numbers for given study	Optional
Analyte	Char	30	Biomarker result being reported			Required
Lower Limit of Quantitation	Num	5,2	Lower limit of quantification of assay	--	Format must be xx.xx	Required

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Variable Name	Type	Length	Description	Controlled Vocabulary	Validation Rules	Collection Requirement
Upper Limit of Quantitation	Num	7,2	Upper limit of quantification of assay	--	Format must be xxxx.xx --	Format must be xxxx.xxRequired
Units	Char	5	Unit of reporting for biomarker result	*pg/mL, ng/mL, µg/mL, U/mL (units/mL), MU/mL (median units/mL)*		Must match one of the values listed in the Controlled Vocabulary column
Comments	Char	200	Result Comment Text or Cancellation Reason, where applicable	--	--	Optional

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5. EXPERIMENTAL INFORMATION AND KEY META DATA DESCRIPTORS

In brief, serum aliquots are tested using multiplexed immunometric assays (Luminex platform) and a Bioplex 200 system (Bio-Rad). Specifically, testing is done using Luminex panels from R&D Systems. Specimens are handled in the same batch, with pairs of quality control (QC) are included for each plate assayed to monitor assay performance. For each run, 6-7 standards are included for each Biomarker tested to interpolate the data using the software.

Data generated are calculated using the proprietary Bio-Plex Manager™ Software v. 6.1 where each analytes are calculated using Regression Type: Logistic-5PL parameter and plotted using Log-Linear regression type curve from the generated standards. The software Optimize Curve Fit are applied across all analytes.

Upper limit and Lower limit of Quantitation are also generated along the graph by the software.

Lower limited of detection are usually assigned and identified by users on a plate by plate basis.

Experimental meta data descriptors will be collected and reported in the following format. Requirements for collection are noted in the last column titled “Collection Requirement”. Experimental meta data descriptors will be submitted in a .csv file to the ODMC.

- Filename will be [Protocol ID]_[assay]_[date]_exp_metadata.csv
- The data must have the columns listed exactly as in the “Variable Name” column. Included values must be included as listed in the “Controlled Vocabulary” and “Validation Rules” columns in the table below.

Table 4: Variables to be Submitted in [Protocol ID]_[assay]_[date]_exp_metadata.csv

Variable Name	Type	Length	Description	Controlled Vocabulary	Validation Rules	Collection Requirement
Protocol	Num	5	Protocol	--	Must match ODMC-specified value for the study	Required
Assay Type	Char	50	Assay type Name	Cytokines	Must match the value listed in the Controlled Vocabulary column	Required
Assay	Char	50	Assay Name	ELISA, Multiplex assays	Must match one of the values listed in the Controlled Vocabulary column	Required
Lab	Char	25	Testing Laboratory Name	AMC Biomarker Core, The Ohio State University, University of California San Diego, University of	Must match one of the values listed in the Controlled Vocabulary column	Required

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Variable Name	Type	Length	Description	Controlled Vocabulary	Validation Rules	Collection Requirement
				California Davis, Bui Lab, Pollard Lab, Inovio		
Lab Institution	Char	50	Testing Laboratory Institution	University of California Los Angeles, The Ohio State University, University of California San Diego, University of California Davis, UCSD Moores Cancer Center, UC Davis, Inovio	Must match one of the values listed in the Controlled Vocabulary column	Required
PI	Char	25	Testing Laboratory Principal Investigator	M. Epeldigui, R. Baiocchi, J. Bui, R. Pollard, Other	Must match one of the values listed in the Controlled Vocabulary column	Required for university-based laboratories
Specimen Type	Char	25	Specimen Type	Serum, Plasma, Saliva, CSF, Vaginal lavage, Urine	Must match one of the values listed in the Controlled Vocabulary column	Required
Kit Name	Char	30	Name of Kit	Human Cytokine Base Kit A, Human Soluble Receptor Kit	Must match one of the values listed in the Controlled Vocabulary column	Required
Manufacturer	Char	30	Manufacturer of Kit	USA R&D Systems Inc	Must match one of the values listed in the Controlled Vocabulary column	Required
Kit Lot #	Char	10	Lot number ofkit	--	--	Required
Instrument	Char	50	Instrument	BioRad Bio-Plex	Must match one of the values listed in the Controlled Vocabulary column	Required
Kit Lower Standard	Num	5,2	Lowest value of standard curve by the kit	--	Format must be xx.xx	Required
Units for Kit Lower Standard	Char	9	Units for lowest value of standard curve by the kit	*pg/mL, ng/mL, µg/mL, U/mL (units/mL), MU/mL (median units/mL)*	Must match one of the values listed in the Controlled Vocabulary column. Value	Required

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Variable Name	Type	Length	Description	Controlled Vocabulary	Validation Rules	Collection Requirement
					should match units of results.	
Controls	Char	50	Type of experimental controls used	Internal QC, kit controls	Must match one of the values listed in the Controlled Vocabulary column. Per kit, unless R&D, then internal lab controls	Required

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6. QUALITY METRICS

There are no quality metrics relevant for cytokine testing that will be reported.

7. MANIFEST OF FILE COLLECTION TO BE SUBMITTED TO THE ODMC

The manifest of the file collection describes the collection of files that are expected along with the transferred files to ensure the integrity of the collection. The following files are expected are expected to be listed in the manifest, at minimum: [Protocol ID]_[assay]_[date]_workflow.csv, [Protocol ID]_[assay]_[date]_exp_data.csv, [Protocol ID]_[assay]_[date]_exp_metadata.csv, [Protocol ID]_[assay]_[date]_exp_manifest.csv.

Manifests will be submitted in a .csv to the ODMC. Requirements for collection are noted in the last column titled “Collection Requirement”.

- Filename will be [Protocol ID]_[assay]_[date]_exp_manifest.csv
- The data must have the columns listed exactly as in the “Variable Name” column. Included values must be included as listed in the “Controlled Vocabulary” and “Validation Rules” columns in the table below.

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Table 6: Variables to be Submitted in [Protocol ID]_[assay]_[date]_exp_manifest.csv

Variable Name	Type	Length	Description	Controlled Vocabulary	Reference	Validation Rules	Collection Requirement
Protocol	Num	5	Protocol ID	--	N/A	Must match ODMC-specified value for the study	Required
File Name	Char	256	Name of the file	--	N/A	--	Required
File Type	Char	256	Type of the file	Raw, Interim-Processed, Final-Processed, Meta-Data, Quality-Metrics	N/A	Must match one of the values listed in the Controlled Vocabulary column	Required
sha256sum	Char	256	sha256 Checksum	--	See Data Preparation Instructions available at https://amcoperations.com/committee/amc-data-commons	--	Required
Timestamp	yyyy-mm-dd hh:mm		Data / Time of file creation	--	N/A	--	Required

Assay results will be reviewed for accuracy and compliance with specified data standards by the laboratory staff prior to transfer per the laboratory's procedures and SOPs.

8. ODMC DATA PROCESSING

Data processing will be performed by ODMC for the experimental data tables, due to site's staffing and data processing capabilities. Tables Protocol ID]_[assay]_[date]_exp_data.csv and [Protocol ID]_[assay]_[date]_exp_data_limits.csv will be validated with ODMC and combined into one table for long-term storage and distribution. Variables will be combined from Protocol ID]_[assay]_[date]_exp_data.csv and [Protocol ID]_[assay]_[date]_exp_data_limits.csv as

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well as incorporating data from Advantage eClinical into the format below labeled Protocol ID]_[assay]_[date]_exp_data_combo.csv (see structure below).

Table 7: Variables to be Submitted in [Protocol ID]_[assay]_[date]_exp_data_combo.csv

Variable Name	Type	Length	Description	Controlled Vocabulary	Processing Steps	Validation Rules	Collection Requirement
Protocol	Num	5	Protocol ID	--	Use file name for reference	Must match ODMC-specified value for the study	Required
Specimen ID	Num	9	Specimen number, refers to the GlobalTrace barcode number printed on each cryovial	--	Use Description field from [Protocol ID]_[assay]_[date]_exp_data.csv	Must be 9 characters long (GlobalTrace specimen ID).	Required
Run ID	Char	2	To identify duplicate or repeat runs	--	Use Plate ID field from [Protocol ID]_[assay]_[date]_exp_data.csv	--	Required if there are records with duplicate key fields
USUBJID	Num	13	SDTM USUBJID ID	--	Use AEC to map Specimen ID to Participant ID	Match list of enrolled participants from ODMC	Optional
Collection Date	Date	8	Date specimen collected	--	Use AEC to map Specimen ID to Collection Date		Optional
Visit Number	Num	3	Study visit number	--	Use AEC to map Specimen ID to Visit Number	Match list of available visit numbers for given study	Optional

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Variable Name	Type	Length	Description	Controlled Vocabulary	Processing Steps	Validation Rules	Collection Requirement
Test Date	Date	8	Date of test	--	Use Acquisition Date from [Protocol ID]_[assay]_[date]_exp_data.csv	Format is expected to be xx/xx/xxxx (mm/dd/yyyy)	Required
Analyte	Char	30	Biomarker result being reported	*See Appendix I column titled "ACTG Codelist Value"*	Use Analyte field from [Protocol ID]_[assay]_[date]_exp_data.csv	Must match one of the values listed in the Controlled Vocabulary column	Required
Type	Char	3	Defining whether the well is a standard or sample		Use Type field from [Protocol ID]_[assay]_[date]_exp_data.csv		Optional
Well	Char	5	Location of the well		Use Well field from [Protocol ID]_[assay]_[date]_exp_data.csv		Optional
Lower Limit of Quantitation	Num	5,2	Lower limit of quantification of assay	--	Use LLOQ field from [Protocol ID]_[assay]_[date]_exp_data_limits.csv	Format must be xx.xx	Required
Upper Limit of Quantitation	Num	7,2	Upper limit of quantification of assay	--	Use ULOQ field from [Protocol ID]_[assay]_[date]_exp_data_limits.csv	Format must be xxxx.xx --	Format must be xxxx.xxRequired

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Variable Name	Type	Length	Description	Controlled Vocabulary	Processing Steps	Validation Rules	Collection Requirement
Result	Char	12	Value of analyte in assayed sample.	--	Use Result field from [Protocol ID]_[assay]_[date]_exp_data.csv	If result is below the LLOQ for the specified assay and run, report result as <[LLOQ value]	Required
Units	Char	5	Unit of reporting for biomarker result	*pg/mL, ng/mL, µg/mL, U/mL (units/mL), MU/mL (median units/mL)*	Use Units field from [Protocol ID]_[assay]_[date]_exp_data_limits.csv	Must match one of the values listed in the Controlled Vocabulary column	Required
Comments	Char	200	Result Comment Text or Cancellation Reason, where applicable	--	Use Comments field from [Protocol ID]_[assay]_[date]_exp_data_limits.csv	--	Optional

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9. APPROVAL

Data Standardization Plan Approval		
By signing this data transfer plan, I approve of the included specifications.		
Laboratory Resource Committee Chair:		
Signature:	Jeffrey M. Bethony, PhD Electronically signed by: Jeffrey M. Bethony, PhD Reason: I am Approving this document Date: Oct 29, 2026 16:00:17 EDT	10/29/2026
	Jeffrey M. Bethony, PhD	Date

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APPENDIX I
COMPREHENSIVE LIST OF CYTOKINES, CHEMOKINES, AND SOLUBLE ACTIVATION MARKERS

Adapted from ACTG's Biomarkers Codes and Descriptions:

ACTG Codelist Value	Short Name	Full Name
101	TNF-α (alpha)	Tumor Necrosis Factor – alpha
102	IFN-Γ (gamma)	Interferon – gamma
103	IL-1 α (alpha)	Interleukin-1 alpha
104	IL-2	Interleukin-2
105	IL-4	Interleukin-4
106	IL-6	Interleukin-6
107	IL-10	Interleukin-10
108	IL-12	Interleukin-12
109	IL-15	Interleukin-15
110	TGFß (beta)	Transforming Growth Factor – beta
111	IL-1 ß (beta)	Interleukin-1 beta
112	IL-7	Interleukin-7
113	IL-18	Interleukin-18
115	Adiponectin	Adiponectin
116	IL-5	Interleukin-5
117	Granzyme B	Granzyme B
118	IL-8	Interleukin-8
119	IL-13	Interleukin-13
120	IL-17	Interleukin-17
121	IL-23	Interleukin-23
122	TNF-ß (beta)	Tumor Necrosis Factor – beta
123	LPS	Lipopolysaccharides
124	HS-hTNF-α (alpha)	High-Sensitivity – Human Tumor Necrosis Factor – alpha
125	OPG	Osteoprotegerin (TNFRSF11B)
126	Leptin	Leptin
127	pHDL	Pro-Inflammatory High-Density Lipoprotein
128	G-CSF	Granulocyte Colony-Stimulating Factor
129	IFNα2	Interferon-alpha 2
130	APOL1	Apolipoprotein L1
131	Type 1 – IFN	Type 1 Interferon
132	IFNα (alpha)	Interferon alpha
133	IFNß (beta)	Interferon beta
134	IL-1RA	Interleukin-1 Receptor Antagonist
135	KLF2	Krüppel-like Factor 2
136	KLF4	Krüppel-like Factor 4
137	GAPDH	Glyceraldehyde 2-phospahte dehydrogenase
138	ApoA-I	Apolipoprotein A-I
139	HDL Dynamic Index	HDL Dynamic Index

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ACTG Codelist Value	Short Name	Full Name
140	IL-9	Interleukin-9
162	EGF	Epidermal Growth Factor
163	FGF-2	Fibroblast Growth Factor 2
164	CCL-11	Eotaxin
165	FLT-3L	FMS-like Tyrosine Kinase 3 Ligand
166	CX3CL1	Fractalkine
168	GRO	Growth-regulated Oncogene
169	MDC	Microphage-derived Chemokine CCL22
170	α-MSH	Alpha-Melanocyte-stimulating Hormone
171	ß-Endorphin	Beta-Endorphins
172	Neurotensin	Neurotensin
173	Orexin-A	Orexin-A
174	Oxytocin	Oxytocin
175	Substance-P	Substance-P
176	TGF-α	Transforming Growth Factor – alpha
177	LOXL2	Lysyl Oxidase-like 2
201	RANTES	Regulated-upon-activation, Normal T-Expressed and Secreted
202	MIP-1α (alpha)	Macrophage Inflammatory Protein 1 – alpha
203	MIP-1ß (beta)	Macrophage Inflammatory Protein 1 – beta
204	SDF-1	Stromal Cell-derived Factor-1
205	MCP-1	Monocyte Chemoattractant Protein 1
206	IP-10	Interferon-gamma Inducible Protein 10 (CXCL10)
207	MCP-2	Monocyte Chemoattractant Protein 2
208	MCP-3	Monocyte Chemoattractant Protein 3
209	I-FABP	Intestinal Fatty Acid Binding Protein
301	sIL-2Rα (alpha)	Soluble Interleukin 2 Receptor – alpha
302	ß-2 Microglobulin	Beta-2 Microglobulin
303	Neopterin	Neopterin
304	sTNF-RI	Soluble Tumor Necrosis Factor – Receptor I
305	sTNF-RII	Soluble Tumor Necrosis Factor – Receptor II
306	C-Reactive Protein	C-Reactive Protein
307	sICAM-1	Soluble Intercellular Adhesion Molecule 1
308	SVCAM	Soluble Vascular Cellular Adhesion Molecule
309	ADMA	Asymmetric Dimethyl Arginine
310	TRAIL	TNF-related Apoptosis-inducing Ligand
316	MMP9	Matrix Metalloproteinase 9
317	P-Selectin	P-Selectin
318	D-Dimer	D-Dimer
319	16S	16S Gene Marker
322	sRAGE	Soluble Receptor for Advanced Glycation End Products
323	esRAGE	Endogenous Soluble Receptor for Advanced Glycation End Products
324	sRANK-L	Soluble Receptor Activator of Nuclear Factor Kappa B

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ACTG Codelist Value	Short Name	Full Name
		Ligand
327	MMP1	Matrix Metalloproteinase 1
328	MMP8	Matrix Metalloproteinase 8
329	OC	Osteocalcin
330	PGE2	Prostaglandin E2
331	CCL28	Chemokine (C-C motif) Ligand 28
332	ICTP	Cross-linked Carboxyterminal Telopeptide of Type I Collagen
333	TBX2	T-box Transcription Factor 2
400	Tryptophan	Tryptophan
401	Tyrosine	Tyrosine
402	Glutamate	Glutamate
403	Anthranilic Acid	Anthranilic Acid
404	Quinolinic Acid	Quinolinic Acid
405	Kinurenine	Kinurenine
406	3HK	3-Hydroxykynurenine
407	PC	Protein Carbonyls
408	NfH	Neurofilament Heavy Polypeptide
409	Ceramides	Ceramides
410	Glu/Gal	Monohexosylceramides
411	DHGlc/CalCer	Dihydro Glc/Galceramides
412	Lactosylceramides	Dihexosylceramides
413	IL-12p70	Interleukin-12p70
414	IL-21	Interleukin-21
416	HGF	Hepatocyte Growth Factor
417	OPN	Osteopontin
418	VEGF-A	Vascular Endothelial Growth Factor A
419	sFAS	Soluble Fas
420	sFAS	Soluble Fas Ligand
421	SDF-1a+b	Stromal Cell-derived Factor 1a and b
422	AHSG	Fetuin A
423	TF	Tissue Factor
424	EndoCAb	Endotoxin Core Antibodies
425	LBP	Lipopolysaccharide Binding Protein
426	GM-CSF	Granulocyte Macrophage Colony-stimulating Factor
427	HPV16	Human Papillomavirus 16
428	HPV18	Human Papillomavirus 18
429	oxLDL	Oxidized Low-density Lipoprotein (also LDLox)
430	IL-12p40	Interleukin-12p40
431	TMAO	Trimethylamine-N-oxide
432	P1NP	Total Procollagen Type 1 N-terminal Propeptide
433	CTX	C-terminal telopeptide
434	GlycA	GlycA
435	GlycB	GlycB

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ACTG Codelist Value	Short Name	Full Name
437	NT-proBNP	N-terminal Fragment of the Prohormone B-type Natriuretic Peptide
438	cTnT	Cardiac Troponin T
439	FGF-23	Fibroblast Growth Factor 23
440	MPO	Myeloperoxidase
441	NGAL	Neutrophil Gelatinase-associated Lipocalin
442	Cystatin C	Cystatin C (Cystatin 3)
443	GRO-α (alpha)	Growth Regulated Oncogene Alpha
444	sCTLA-4	Soluble Cytotoxic T-lymphocyte Associated Protein 4
445	D2	Prostaglandin D2
447	Delta-12	Prostaglandin Delta-12
448	J2	Prostaglandin J2
449	Dihydro keto-D2	Prostaglandin dihydro keto-D2
450	15-deoxy J2	Prostaglandin 15-deoxy J2
451	15-deoxy D2	Prostaglandin 15-deoxy D2
452	F2α (alpha)	Prostaglandin F2 alpha
453	8-isoprostane	Prostaglandin 8-isoprostane
454	9α-11ßF2	Prostaglandin 9 alpha-11 beta F2
455	LTB4	Leukotriene B4
456	LTC4	Leukotriene C4
457	LTD4	Leukotriene D4
458	LTE4	Leukotriene E4
459	Lp-PLA2	Lipoprotein-Associated Phospholipase A2
460	hsCRP	High-sensitivity C-reactive Protein
461	Fibrinogen	Fibrinogen (Factor I)
462	9-HODE	9-Hydroxyoctadecadienoic Acid
463	13-HODE	13-Hydroxyoctadecadienoic Acid
464	5-HEPE	5-Hydroxyeicosapentaenoic Acid
465	8-HEPE	8-Hydroxyeicosapentaenoic Acid
466	9-HETE	9-Hydroxyeicosatetraenoic Acid
467	11-HETE	11-Hydroxyeicosatetraenoic Acid
468	12-HETE	12-Hydroxyeicosatetraenoic Acid
469	15-HETE	15-Hydroxyeicosatetraenoic Acid
470	TGFb1	Transforming Growth Factor, Beta 1
471	TGFb2	Transforming Growth Factor, Beta 2
472	TGFb3	Transforming Growth Factor, Beta 3
473	HA	Hyaluronan
474	CICP	C Terminal of Type I Collagen
475	HO-1	Heme Oxygenase
476	Zonulin	Zonulin
477	hsIL-6	High Sensitivity, Interleukin-6
478	IL-16	Interleukin-16
479	MCP-4	Monocyte Chemoattractant Protein 4
480	CCL17	Chemokine Ligand 17 (TARC)

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ACTG Codelist Value	Short Name	Full Name
481	IL-8 HA	Interleukin-8, High Abundance
483	suPAR	Soluble Urokinase Plasminogen Activator Receptor
484	ß D Glucan	Beta D Glucan, ß-Glucan
485	B-FABP	Brain Fatty Acid Binding Protein
486	IL-17a	Interleukin-17a
487	P111NP	Procollagen III Amino Terminal Peptide
488	TIMP-1	Tissue Inhibitor of Metalloproteinase 1
489	ELF	Enhanced Liver Fibrosis
490	sVCAM-1	Soluble Vascular Cell Adhesion Molecule 1
491	NFL	Neurofilament Light Chain Protein
492	E-selectin	E-selectin
493	sICAM-5	Soluble Intercellular Adhesion Molecule 5
494	Endothelin-1	Endothelin-1
495	IL-1 R-1	Interleukin-1 Receptor Type 1
496	vWF-A2	Von-Willebrand Factor A2
497	Mannitol	Mannitol
498	Lactulose	Lactulose
499	FGF-21	Fibroblast Growth Factor-21
500	GDF-15	Growth Differentiation Factor 15
501	ST2	ST2 Cardiac Biomarker
502	GT-9	Galectine-9
503	IL-11	Interleukin-11
504	hsIL-10	High Sensitivity, Interleukin-10
505	IL-22	Interleukin-22
506	IL-33	Interleukin-33
507	Calg A	Calg A
508	ITAC	CXCL11 (ITAC)
509	MIG	CXCL9 (Monokine Induced by Gamma)
510	IL-10 CMV	Cytomegalovirus-encoded Human Interleukin-10
511	MIP-3α	Macrophage Inflammatory Protein-3 alpha
512	M-CSF	Macrophage Colony Stimulating Factor
513	ATX	Autotaxin
514	M2BP	Mac-2 Binding Protein
515	CML	Ne-carboxymethyl Lysine
516	CEL	Ne-carboxyethyl Lysine
517	G-H1	Glyoxal Hydroimidazolone
519	3DG-H	2-deoxyglucosone Hydroimidazolone
520	MetO	Methionine Sulfoxide
521	AAA	2-amino Adipic Acid
523	CD16	Cluster of Differentiation FcγRIII
311	CD27	Cluster of Differentiation 27
538	CD28	Cluster of Differentiation 28
312	CD40L	Cluster of Differentiation 40 Ligand
543	CD80	Cluster of Differentiation 80

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ACTG Codelist Value	Short Name	Full Name
544	CD86	Cluster of Differentiation 86
522	CD107a	Cluster of Differentiation 107a
415	CD163	Cluster of Differentiation 163
315	sCD14	Soluble Cluster of Differentiation 14
482	sCD26	Soluble Cluster of Differentiation 26
313	sCD40	Soluble Cluster of Differentiation 40
326	sCD40L	Soluble Cluster of Differentiation 40 Ligand
325	sCD163	Soluble Cluster of Differentiation 163
524	DNAM1	DNAX Accessory Molecule-1
525	LAG3	Lymphocyte Activating Gene 3 Protein
526	NKp30	Natural Cytotoxicity Receptor NKp30
527	NKp46	Natural Cytoxicity Receptor NKp46
528	NKG2D	Natural Killer Group 2D
529	PD1	Programmed Cell Death Protein 1
531	TIGIT	T-cell Immunoreceptor with Ig and ITIM Domains
532	IL-27	Interleukin-27
533	IL029	Interleukin029
534	sTIM-3	Soluble T-cell Immunoglobulin Mucin 3
535	DPP4	Dipeptidyl Peptidase 4
537	BTLA	B and T Lymphocyte Attenuator
539	HVEM	Herpes Virus Entry Mediator
540	GITR	Glucocorticoid-induced TNF Receptor
541	TLR-2	Toll Like Receptor 2
542	GITRL	Glucocorticoid-induced TNF Receptor Ligand
545	PDL1	Programmed Death Ligand 1
546	ICOS	Inducible Costimulatory Molecule
548	2-Methylbutyric Acid	2-Methylbutyric Acid
549	Acetic Acid	Acetic Acid
550	Butyric Acid	Butyric Acid
551	Hexanoic Acid	Hexanoic Acid
552	Isobutyric Acid	Isobutyric Acid
553	Isovaleric Acid	Isovaleric Acid
554	Lactic Acid	Lactic Acid
555	Propionic Acid	Propionic Acid
556	Valeric Acid	Valeric Acid
557	IgG	Immunoglobulin G
558	IgA	Immunoglobulin A
559	CMV IgG	Cytomegalovirus IgG
560	Eotaxin-3	Eotaxin-3 CCL29
561	LDH	Lactate Dehydrogenase
562	PN1 specific IgG	Pneumococcus Serotype 1 Specific IgG
563	PN1 specific IgA	Pneumococcus Serotype 1 Specific IgA
564	t-Tau	Total Tau
565	p-tau231	Phosphorylated Tau 231

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ACTG Codelist Value	Short Name	Full Name
566	Aß42	Amyloid Beta 42
567	BDNF	Brain Derived Neurotrophic Factor
568	GFAP	Glial Fibrillary Acidic Protein

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