

Teiko Data Transfer Specifications

Definitions

Gating: The process of classifying cell events into biologically descriptive cell populations and cell states based on marker expression. This involves drawing boundaries or “gates” over specific cell populations to classify those cell populations’ respective lineages.

Clustering: The process of using unsupervised machine learning to identify cell types defined by their expression of markers without prior knowledge of cell populations.

FCS: Flow Cytometry Standard, a .fcs file format for cytometry data containing mass cytometry acquisition events and their associated channel values. The files provided will be version 3.1. Specifications for this format can be found [here](#).

GatingML2.0: a .gatingml file format used to store a representation of cytometry gates. The file format version to be provided will be version 2.0. Specifications for this format can be found [here](#).

Data Description and Usage

Teiko Bio’s analysis produces one FCS file per sample and one GatingML2.0 file per sample. We will also generate five results files per analysis summarizing different outputs of our analysis pipeline:

1. Gated population frequencies by sample
 - a. UMN002_gated_population_frequencies_by_sample_YYYY_MM_DD_HH_MM_SS.csv
2. Gated population cell state frequencies by sample
 - a. UMN002_gated_cell_state_by_sample_YYYY_MM_DD_HH_MM_SS.csv
3. Gated population marker expression by sample
 - a. UMN002_gated_marker_expression_by_sample_YYYY_MM_DD_HH_MM_SS.csv
4. Clustered population frequencies by sample
 - a. UMN002_clustered_population_frequencies_YYYY_MM_DD_HH_MM_SS.csv
5. Clustered population marker expression by sample
 - a. UMN002_clustered_marker_expression_YYYY_MM_DD_HH_MM_SS.csv
6. FCS file **per** sample. Will provide a directory containing all files per sample.
 - a. UMN002_fcs_YYYY_MM_DD_HH_MM_SS
 - i. <sample_name>.fcs
7. Gating ml **per** sample. Will provide a directory containing all files per sample.
 - a. UMN002_gatingml_YYYY_MM_DD_HH_MM_SS
 - i. <sample_name>.gatingml

Each file contains metadata to identify results associated with a particular sample and subject.

For example, if a client sends Teiko Bio four cohorts, with nine samples in each cohort (36 samples total), the client will receive 36 FCS files, 36 GatingML files, and the three results files described above.

Amendment Process

If this Data Transfer Specifications document needs to be modified after being approved by the client and Teiko, such as to accommodate changes in the experimental plan or analysis tier, Teiko will prepare an updated version of this document for the client to review and approve before proceeding.

File Structure

File 0: Customer metadata associated with the project. This file is used for reconciliation across files 1 to 5.

Column	Definition	Data Type	Example value(s)
sample_name	Teiko code associated with the patient sample from a single time point	Alphanumeric	UMN002-037
accession_id	Accession number from external CRO, if applicable	Alphanumeric	160816P001
subject_name	Code associated with the patient	Alphanumeric	14020-UMN-6876
metadata_id_1	Any metadata to associate with the sample. For example dosage.	tbd	tbd
...	Any metadata to associate with the sample.	tbd	tbd
metadata_id_n	Any metadata to associate with the sample.	tbd	tbd

File 1: Gated population frequencies by sample, column descriptions

Column	Definition	Data Type	Example value(s)
teiko_sample_name	Teiko code associated with the patient sample from a single time point	Alphanumeric	UMN002-037
sample_name	Accession number from external CRO, if applicable	Alphanumeric	160816P001
subject_name	Code associated with the patient	Alphanumeric	14020-UMN-6876
top_level_cell_population	Code defining top-level population of the population being reported	Alphanumeric	nonGRAN
top_level_cell_population_display_name	Top-level population name in plain language	Alphanumeric	non-Granulocyte
cell_population	Code defining population being quantified	Alphanumeric	B_CELL
cell_population_display_name	Population name in plain language	Alphanumeric	B Cell
cell_population_event_count	Number of events associated with population	Numeric	2157
top_level_cell_population_event_count	Number of events associated with top-level population	Numeric	199448
percentage_of_top_level_gate	Percentage of top-level population associated with population	Numeric	1.081485
low_cell_count	Indicates whether a parent population is below (TRUE) or above (FALSE) the threshold for analysis. The standard threshold is 100 cells.	Boolean (TRUE or FALSE)	FALSE

File 1: This is an example of data of a single sample for the *Gated population frequencies by sample*.

teiko_sample_name	sample_name	subject_name	top_level_cell_population	top_level_cell_population_display_name	cell_population	cell_population_display_name	cell_population_event_count	top_level_cell_population_event_count	percentage_of_top_level_gate	low_cell_count	
0	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	B_CELL	B Cell	2157	199448	1.081485	False
1	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	B_MEM	B Memory	426	199448	0.213590	False
2	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	B_NAIVE	B Naive	1038	199448	0.520436	False
3	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	PB	Plasmablast	699	199448	0.350467	False
4	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD4_T	CD4+ T	140850	199448	70.619911	False
5	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD4_TCM	CD4+ T Central Memory	97213	199448	48.741025	False
6	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD4_TEM	CD4+ T Effector Memory	5407	199448	2.710982	False
7	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD4_TEMRA	CD4+ TEMRA	33	199448	0.016546	False
8	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD4_TNAIVE	CD4+ T Naive	36856	199448	18.479002	False
9	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	TREG	Treg	1036	199448	0.519434	False
10	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD8_T	CD8+ T	3926	199448	1.968433	False
11	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD8_TCM	CD8+ T Central Memory	2650	199448	1.328667	False
12	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD8_TEM	CD8+ T Effector Memory	264	199448	0.132365	False
13	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD8_TEMRA	CD8+ TEMRA	109	199448	0.054651	False
14	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD8_TNAIVE	CD8+ T Naive	903	199448	0.452750	False
15	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	DC	Dendritic Cell	684	199448	0.342947	False
16	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	cDC	Classical DC	671	199448	0.336429	False
17	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	pDC	Plasmacytoid DC	5	199448	0.002507	False
18	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	transDC	Transitional DC	8	199448	0.004011	False
19	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	MONO	Monocyte	45416	199448	22.770848	False
20	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	cMONO	Classical Monocyte	43383	199448	21.751534	False
21	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	inMONO	Intermediate Monocyte	1722	199448	0.863383	False
22	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	ncMONO	Non-classical Monocyte	116	199448	0.058161	False
23	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	NK	Natural Killer	2877	199448	1.442481	False
24	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD16_NK	Cytolytic NK	1846	199448	0.925555	False
25	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD16neg_NK	Non-cytolytic NK	638	199448	0.319883	False
26	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD56hi_NK	Cytokine-producing NK	399	199448	0.200052	False
27	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	DNT	Double-negative T	226	199448	0.113313	False
28	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	DPT	Double-positive T	249	199448	0.124845	False
29	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	GDT	Gamma-delta T	351	199448	0.175986	False
30	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	NKT	NKT	701	199448	0.351470	False

File 2: Gated population cell state frequencies by sample, column descriptions.

Column	Definition	Data Type	Example value(s)
teiko_sample_name	Teiko code associated with the patient sample from a single time point	Alphanumeric	UMN002-037
sample_name	Accession number from external CRO, if applicable	Alphanumeric	160816P001
subject_name	Code associated with the patient	Alphanumeric	14020-UMN-6876
parent_cell_population	Code defining the parent population of the population being reported	Alphanumeric	B_CELL
parent_cell_population_display_name	Parent population name in plain language	Alphanumeric	B Cell
cell_state	Code defining population being quantified	Alphanumeric	PDL1
cell_state_display_name	Cell state name in plain language	Alphanumeric	PD-L1
cell_state_event_count	Number of events associated with population	Numeric	1917
parent_cell_population_event_count	Number of events associated with the parent population	Numeric	2157
percentage_of_parent	Percentage of parent population associated with population	Numeric	88.873435
low_cell_count	Indicates whether a parent population is below (TRUE) or above (FALSE) the threshold for analysis. The standard threshold is 100 cells.	Boolean (TRUE or FALSE)	FALSE

File 2: This is an example of the *gated population state frequencies by sample*. Displayed is a single sample, and the first parent cell population for that sample is shown (B Cell).

teiko_sample_name	sample_name	subject_name	parent_cell_population	parent_cell_population_display_name	cell_state	cell_state_display_name	cell_state_event_count	parent_cell_population_event_count	percentage_of_parent	low_cell_count
0	UMN002-037	160816P001	14020-UMN-6876	B_CELL	B Cell	GLUT1	1917	2157	88.873435	False
1	UMN002-037	160816P001	14020-UMN-6876	B_CELL	B Cell	KLRG1	1	2157	0.046361	False
2	UMN002-037	160816P001	14020-UMN-6876	B_CELL	B Cell	TIM3	1	2157	0.046361	False
3	UMN002-037	160816P001	14020-UMN-6876	B_CELL	B Cell	PDL1	1	2157	0.046361	False
4	UMN002-037	160816P001	14020-UMN-6876	B_CELL	B Cell	TBET	172	2157	7.974038	False
5	UMN002-037	160816P001	14020-UMN-6876	B_CELL	B Cell	CTLA4	2	2157	0.092721	False
6	UMN002-037	160816P001	14020-UMN-6876	B_CELL	B Cell	KI67	752	2157	34.863236	False
7	UMN002-037	160816P001	14020-UMN-6876	B_CELL	B Cell	CD38	1147	2157	53.175707	False
8	UMN002-037	160816P001	14020-UMN-6876	B_CELL	B Cell	PD1	42	2157	1.947149	False
9	UMN002-037	160816P001	14020-UMN-6876	B_CELL	B Cell	LAG3	6	2157	0.278164	False
10	UMN002-037	160816P001	14020-UMN-6876	B_CELL	B Cell	CCR7	1465	2157	67.918405	False
11	UMN002-037	160816P001	14020-UMN-6876	B_CELL	B Cell	HLADR	2125	2157	98.516458	False
12	UMN002-037	160816P001	14020-UMN-6876	B_CELL	B Cell	CD25	228	2157	10.570236	False
13	UMN002-037	160816P001	14020-UMN-6876	B_CELL	B Cell	VISTA	10	2157	0.463607	False
14	UMN002-037	160816P001	14020-UMN-6876	B_CELL	B Cell	INT_B7	248	2157	11.497450	False
15	UMN002-037	160816P001	14020-UMN-6876	B_CELL	B Cell	ST2	335	2157	15.530830	False
16	UMN002-037	160816P001	14020-UMN-6876	B_CELL	B Cell	AREG	38	2157	1.761706	False
17	UMN002-037	160816P001	14020-UMN-6876	B_CELL	B Cell	AREG_ST2	13	2157	0.602689	False

File 3: Gated marker expression by sample column descriptions

Column	Definition	Date Type	Example value(s)
teiko_sample_name	Teiko code associated with the patient sample from a single time point	Alphanumeric	UMN002-037
sample_name	Accession number from external CRO, if applicable	Alphanumeric	160816P001
subject_name	Code associated with the patient	Alphanumeric	14020-UMN-6876
parent_cell_population	Code defining parent population of the population being reported	Alphanumeric	B_CELL
parent_cell_population_display_name	Parent population name in plain language	Alphanumeric	B Cell
cell_state	Code defining population being quantified	Alphanumeric	PDL1
cell_state_display_name	Cell state name in plain language	Alphanumeric	PD-L1
is_state_filter_applied	Indicates whether the population contains all cells (FALSE) or only contains cells positive for a specific state marker (TRUE)	Boolean (TRUE or FALSE)	FALSE
<Marker 1 of n> (ex. AREG)	Arcsinh-transformed median channel value of <Marker 1 of n> within the population; if a median channel value was not computed for this marker in this population, the value is reported as <blank>	Numeric	0.093265
<Marker 2 of n> (ex. CCR7)	Arcsinh-transformed median channel value of <Marker 2 of n> within the population; if a median channel value was not computed for this marker in this population, the value is reported as <blank>	Numeric	2.995684
[additional markers]

<Marker n of n> (ex. VISTA)	Arcsinh-transformed median channel value of <Marker n of n> within the population; if a median channel value was not computed for this marker in this population, the value is reported as <blank>	Numeric	1.484823
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File 3: This is an example of the *gated population marker expression by sample*. Below shows a single sample, all parent cell populations **not** filtered by state marker, and the first cell population (B Cell) filtered by the relevant state markers. If there is no expression when the state marker filter is applied there will be no row.

teiko_sample_name	sample_name	subject_name	parent_cell_population	parent_cell_population_display_name	cell_state	cell_state_display_name	is_state_filter_applied	AREG	CCR7	CD25	CD38	CTLA4	GLUT1	HLADR	INT_B7	KI67	KLRG1	LAG3	PD1	PDL1	ST2	TBET	TIM3	VISTA
0	UMN002-037	14020-UMN-6876	B_CELL	B Cell	Na	Na	False	0.093265	2.995684	0.364533	3.309353	0.029596	3.130242	4.881866	0.648533	0.838625	0.000000	0.0	0.105981	0.000000	0.628465	0.319782	0.000000	1.484823
1	UMN002-037	14020-UMN-6876	B_MEM	B Memory	Na	Na	False	0.002040	2.777179	0.261296	0.576920	0.000000	2.702832	4.913026	0.104032	0.373589	0.000000	0.0	0.000000	0.022118	0.221719	0.971451	0.000000	1.396199
2	UMN002-037	14020-UMN-6876	B_NAIVE	B Naive	Na	Na	False	0.006400	3.282503	0.454310	3.097752	0.000000	3.211200	4.689233	0.651355	0.463378	0.000000	0.0	0.000000	0.000000	0.351441	0.036752	0.000000	1.328455
3	UMN002-037	14020-UMN-6876	CD16_NK	Cytolytic NK	Na	Na	False	0.627667	1.463519	0.498904	5.264464	0.000000	1.992081	1.776002	0.309114	0.263713	0.528265	0.0	0.258763	0.000000	1.414165	2.664044	0.589499	2.258333
4	UMN002-037	14020-UMN-6876	CD16neg_NK	Non-cytolytic NK	Na	Na	False	0.237229	1.155207	0.478957	4.888269	0.000000	2.203954	2.187812	0.261200	0.345844	0.186860	0.0	0.208388	0.000000	1.133673	2.191302	0.498496	2.157988
5	UMN002-037	14020-UMN-6876	CD4_T	CD4+ T	Na	Na	False	0.267344	4.635653	2.915966	1.937529	0.912949	1.432480	0.129894	0.667123	0.966089	0.000000	0.0	0.179711	0.204786	0.204707	0.262862	0.000000	1.363248
6	UMN002-037	14020-UMN-6876	CD4_TCM	CD4+ T Central Memory	Na	Na	False	0.242399	4.530161	2.763899	1.737084	0.933711	1.437825	0.172779	0.571567	0.904572	0.000000	0.0	0.221172	0.223163	0.210267	0.255065	0.000000	1.368298
7	UMN002-037	14020-UMN-6876	CD4_TEM	CD4+ T Effector Memory	Na	Na	False	0.021218	2.162645	2.744001	1.706861	1.285838	1.828248	1.166102	0.208545	0.633093	0.000000	0.0	1.173904	0.237423	0.350669	0.396007	0.000000	1.574473
8	UMN002-037	14020-UMN-6876	CD4_TEMRA	CD4+ TEMRA	Na	Na	False	0.043187	1.712328	0.297894	2.682377	1.281268	2.159935	1.902273	1.192939	0.623391	1.111688	0.0	1.152726	0.128447	0.519691	1.380368	0.261992	1.868883
9	UMN002-037	14020-UMN-6876	CD4_TNAIVE	CD4+ T Naive	Na	Na	False	0.389422	4.914779	3.208624	2.245318	0.794798	1.375761	0.000000	1.089161	1.127522	0.000000	0.0	0.043806	0.157923	0.163888	0.263307	0.000000	1.315992
10	UMN002-037	14020-UMN-6876	CD56h_NK	Cytokine-producing NK	Na	Na	False	0.691146	2.271760	0.640698	5.224146	0.091632	2.356564	2.298931	0.340899	1.234189	0.000000	0.0	0.436834	0.000000	1.478018	2.172959	0.552378	1.994864
11	UMN002-037	14020-UMN-6876	CD8_T	CD8+ T	Na	Na	False	0.140339	2.410340	0.264698	3.816959	0.431376	2.540084	2.746447	1.480998	1.726507	0.200004	0.0	1.860926	0.141864	0.581954	1.170004	0.209621	2.064086
12	UMN002-037	14020-UMN-6876	CD8_TCM	CD8+ T Central Memory	Na	Na	False	0.108805	2.347089	0.296707	4.306926	0.607716	2.964816	4.243300	1.551059	3.237708	0.171715	0.0	2.307815	0.180164	0.752025	1.326285	0.309209	2.301872
13	UMN002-037	14020-UMN-6876	CD8_TEM	CD8+ T Effector Memory	Na	Na	False	0.138616	2.106471	0.483447	3.878633	0.638040	3.048853	4.843429	1.357113	3.938684	0.202287	0.0	2.147269	0.073833	0.572800	1.469102	0.164990	2.287287
14	UMN002-037	14020-UMN-6876	CD8_TEMRA	CD8+ TEMRA	Na	Na	False	0.221231	1.279431	0.093006	3.690243	0.111847	1.930631	1.912164	1.594091	0.222792	3.188547	0.0	0.855774	0.055012	0.539348	2.083500	0.107175	1.796359
15	UMN002-037	14020-UMN-6876	CD8_TNAIVE	CD8+ T Naive	Na	Na	False	0.247098	4.533388	0.157528	1.614932	0.058127	1.372183	0.281449	1.281124	0.745222	0.199220	0.0	0.238590	0.065753	0.170414	0.579599	0.000000	1.471866
16	UMN002-037	14020-UMN-6876	DC	Dendritic Cell	Na	Na	False	0.725484	1.633965	0.070222	4.261703	0.388345	0.581934	3.395543	0.571567	1.986360	0.000000	0.0	0.092468	0.000000	0.790545	0.519320	0.000000	4.230221
17	UMN002-037	14020-UMN-6876	DNT	Double-negative T	Na	Na	False	0.053754	3.630878	0.363933	2.888555	0.480281	1.882491	0.508978	1.824226	0.706803	0.000000	0.0	1.995850	0.213377	0.276895	0.461936	0.364833	1.724864
18	UMN002-037	14020-UMN-6876	DPT	Double-positive T	Na	Na	False	0.222090	4.148555	1.795946	2.095004	0.694379	1.833660	1.025617	1.375618	0.799053	0.284314	0.0	0.533386	0.301798	0.262658	0.989351	0.000000	1.826217
19	UMN002-037	14020-UMN-6876	GDT	Gamma-delta T	Na	Na	False	0.346486	3.469325	1.872032	2.793484	0.488356	1.724014	0.777503	0.446024	0.938646	0.595377	0.0	0.518547	0.158061	0.397082	1.042874	0.195826	1.738667
20	UMN002-037	14020-UMN-6876	MONO	Monocyte	Na	Na	False	0.594159	1.829050	0.077403	4.480207	0.600292	0.346863	4.455018	0.801823	1.534261	0.194963	0.0	0.212615	0.282007	1.034079	0.887315	0.000000	5.169215
21	UMN002-037	14020-UMN-6876	NK	Natural Killer	Na	Na	False	0.538408	1.546415	0.508059	5.183811	0.000000	2.081792	1.898336	3.02830	0.332594	0.281873	0.0	0.262824	0.000000	1.357471	2.502439	0.564292	2.208799
22	UMN002-037	14020-UMN-6876	NKT	NKT	Na	Na	False	0.263655	2.197461	1.223179	3.083044	0.500199	1.870389	1.058850	1.006464	0.785194	0.750003	0.0	0.435958	0.214101	0.553796	1.553446	0.071439	1.921023
23	UMN002-037	14020-UMN-6876	PB	Plasmablast	Na	Na	False	0.227025	2.639764	0.303977	6.263969	0.226947	3.175636	5.298083	1.501445	4.576903	0.000000	0.0	0.834233	0.117430	2.248233	0.490085	0.007520	1.802997
24	UMN002-037	14020-UMN-6876	TREG	Treg	Na	Na	False	0.115424	3.680661	4.528515	3.557048	1.955201	1.552235	1.289725	0.405200	1.406369	0.000000	0.0	0.893267	0.162741	0.620240	0.664407	0.097545	1.648753
25	UMN002-037	14020-UMN-6876	cDC	Classical DC	Na	Na	False	0.713991	1.629520	0.064336	4.258720	0.397453	0.562641	3.394890	0.578337	2.000654	0.000000	0.0	0.091353	0.000000	0.671989	0.539644	0.000000	4.243816
26	UMN002-037	14020-UMN-6876	cMONO	Classical Monocyte	Na	Na	False	0.604387	1.827966	0.076705	4.486757	0.600630	0.341409	4.432096	0.868360	1.575902	0.193667	0.0	0.209993	0.273363	1.029600	0.886188	0.000000	5.158385
27	UMN002-037	14020-UMN-6876	inMONO	Intermediate Monocyte	Na	Na	False	0.356970	1.869215	0.085197	4.375107	0.644488	0.449617	5.414908	0.776395	0.796177	0.268714	0.0	0.277793	0.620891	1.199414	0.932725	0.057049	5.525388
28	UMN002-037	14020-UMN-6876	ncMONO	Non-classical Monocyte	Na	Na	False	0.476717	1.810556	0.095336	3.920762	1.925059	0.950616	2.975368	0.266591	0.682570	0.062819	0.0	0.235244	0.125689	1.126208	1.068166	0.027976	4.370980
29	UMN002-037	14020-UMN-6876	B_CELL	B Cell	AREG	Amphiregulin	True	1.537875	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na
30	UMN002-037	14020-UMN-6876	B_CELL	B Cell	CCR7	CCR7	True	Na	3.350892	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na
31	UMN002-037	14020-UMN-6876	B_CELL	B Cell	CD25	CD25	True	Na	Na	2.091039	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na
32	UMN002-037	14020-UMN-6876	B_CELL	B Cell	CD38	CD38	True	Na	Na	Na	5.515462	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na
33	UMN002-037	14020-UMN-6876	B_CELL	B Cell	GLUT1	GLUT1	True	Na	Na	Na	Na	Na	3.211452	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na
34	UMN002-037	14020-UMN-6876	B_CELL	B Cell	HLADR	HLA-DR	True	Na	Na	Na	Na	Na	Na	4.894191	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na
35	UMN002-037	14020-UMN-6876	B_CELL	B Cell	INT_B7	Integrin B7	True	Na	Na	Na	Na	Na	Na	Na	Na	3.568418	Na	Na	Na	Na	Na	Na	Na	Na
36	UMN002-037	14020-UMN-6876	B_CELL	B Cell	KI67	KI67	True	Na	Na	Na	Na	Na	Na	Na	Na	4.643616	Na	Na	Na	Na	Na	Na	Na	Na
37	UMN002-037	14020-UMN-6876	B_CELL	B Cell	PD1	PD-1	True	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	2.114549	Na	Na	Na	Na
38	UMN002-037	14020-UMN-6876	B_CELL	B Cell	ST2	ST2	True	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	2.975714	Na	Na	Na

File 4: Clustered population frequencies by sample column descriptions

Column	Definition	Data Type	Example value(s)
teiko_sample_name	Teiko code associated with the patient sample from a single time point	Alphanumeric	UMN002-037
sample_name	Accession number from External CRO, if applicable	Alphanumeric	160816P001
subject_name	Code associated with the patient	Alphanumeric	14020-UMN-6876
top_level_cell_population	Code defining top-level population of the population being reported	Alphanumeric	nonGRAN
top_level_cell_population_display_name	Top-level population name in plain language	Alphanumeric	non-Granulocyte
cell_population	Code defining population being quantified	Alphanumeric	MONO.0
percentage_of_top_level_gate	Percentage of top-level population associated with population	Numeric	1.8132
cell_population_event_count	Number of events associated with population	Numeric	3611

File 4: This is an example of data for a single sample for the *clustered population frequencies by sample*.

teiko_sample_name	sample_name	subject_name	top_level_cell_population	top_level_cell_population_display_name	cell_population	percentage_of_top_level_gate	cell_population_event_count	
0	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	MONO.0	1.8132	3611
1	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	cMONO.1	0.7401	1474
2	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	cMONO.2	5.1167	10190
3	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD4_TCM.3	4.7230	9406
4	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	cMONO.4	1.6420	3270
5	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	MONO.5	0.4218	840
6	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD4_TNAIVE.6	40.1268	79913
7	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	inMONO.7	0.0748	149
8	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	MONO.8	7.4938	14924
9	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD4_TEM.9	1.6771	3340
10	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	MONO.10	0.0341	68
11	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD8_T.11	0.5107	1017
12	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD8_TCM.12	1.0013	1994
13	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD4_T.13	18.4463	36736
14	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	MONO.14	4.9360	9830
15	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	inMONO.15	0.2847	567
16	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	NK.16	0.3861	769
17	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	NK.17	0.0156	31
18	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD4_TEM.18	0.4404	877
19	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	TREG.19	0.8918	1776
20	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD4_nonTREG.20	3.2664	6505
21	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD4_TEM.21	1.5877	3162
22	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	GDT.22	0.0763	152
23	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	MONO.23	0.2561	510
24	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD16_NK.24	0.4539	904
25	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	MONO.25	0.0176	35
26	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	cMONO.26	0.7999	1593
27	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD16_NK.27	0.4640	924
28	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD16_NK.28	0.1662	331
29	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD8_TNAIVE.29	0.5313	1058
30	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD8_T.30	0.0542	108
31	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	inMONO.31	0.0025	5
32	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD8_TEMRA.32	0.1356	270
33	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	DNT.34	0.0768	153
34	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	DC.35	0.0176	35
35	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	transDC.36	0.0487	97
36	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	CD16_NK.37	0.0176	35
37	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	B_MEM.38	0.2651	528
38	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	B_NAIVE.39	0.5292	1054
39	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	PB.42	0.4549	906
40	UMN002-037	160816P001	14020-UMN-6876	nonGRAN	non-Granulocyte	inMONO.48	0.0020	4

File 5: Clustered populations marker expression by sample

Column	Definition	Date Type	Example value(s)
teiko_sample_name	Teiko code associated with the patient sample from a single time point	Alphanumeric	UMN002-037
sample_name	Accession number from external CRO, if applicable	Alphanumeric	160816P001
subject_name	Code associated with the patient	Alphanumeric	14020-UMN-6876
cell_population	Code defining clustered cell population	Alphanumeric	B_MEM.38
<Marker 1 of n> (ex. AREG)	Arcsinh-transformed median channel value of <Marker 1 of n> within the population; if a median channel value was not computed for this marker in this population, the value is reported as <blank>	Numeric	0.00000
<Marker 2 of n> (ex. CCR7)	Arcsinh-transformed median channel value of <Marker 2 of n> within the population; if a median channel value was not computed for this marker in this population, the value is reported as <blank>	Numeric	2.665345
[additional markers]
<Marker n of n> (ex. VISTA)	Arcsinh-transformed median channel value of <Marker n of n> within the population; if a median channel value was not computed for this marker in this population, the value is reported as <blank>	Numeric	1.446879

Data Transfer Methods and Protocols

Data will be transferred via secure login through our web application. The data transfer utilizes AWS S3 service to securely collect and transfer data.

Glossary of Gated Populations (to change depending on project)

Population Code (cell_population)	Population Name	Definition (Marker Parameters)
LIVE	Live	DNA+ Event Length below 40 Cisplatin-
LEUKOCYTE	Total Leukocyte	DNA+ Event Length below 40 Cisplatin- CD61-CD235AB-
B_CELL	B Cell	nonGRAN CD3- CD19+ CD14- CD56-
B_MEM	B Memory	nonGRAN CD3- CD19+ CD14- CD56- CD38- CD27+
B_NAIVE	B Naive	nonGRAN CD3- CD19+ CD14- CD56- CD38+ CD27-
PB	Plasmablast	nonGRAN CD3- CD19+ CD14- CD56- CD38hi CD27hi
CD4_T	CD4+ T	...
CD4_TCM	CD4+ T Central Memory	...
CD4_TEM	CD4+ T Effector Memory	...
CD4_TEMRA	CD4+ TEMRA	...
CD4_TNAIVE	CD4+ T Naive	...
TREG	Treg	...
CD8_T	CD8+ T	...
CD8_TCM	CD8+ T Central Memory	...
CD8_TEM	CD8+ T Effector Memory	...
CD8_TEMRA	CD8+ TEMRA	...
CD8_TNAIVE	CD8+ T Naive	...
DC	Dendritic Cell	...
cDC	Classical DC	...
pDC	Plasmacytoid DC	...
transDC	Transitional DC	...
MONO	Monocyte	...
cMONO	Classical Monocyte	...
inMONO	Intermediate Monocyte	...
ncMONO	Non-classical Monocyte	...
NK	Natural Killer	...

CD16_NK	Cytolytic NK	...
CD16neg_NK	Non-cytolytic NK	...
CD56hi_NK	Cytokine-producing NK	...
DNT	Double-negative T	...
DPT	Double-positive T	...
GDT	Gamma-delta T	...
NKT	NKT	...

Glossary of State Markers (to change depending on project)

State Code (state_marker)	State Name	Analysis of State Frequency	Analysis of State Marker Expression
TIM3	TIM-3	TRUE	TRUE
PDL1	PD-L1	TRUE	TRUE
TCF1	TCF-1	TRUE	TRUE
TBET	TBET	TRUE	TRUE
CTLA4	CTLA-4	TRUE	TRUE
KI67	Ki67	TRUE	TRUE
TIGIT	TIGIT	TRUE	TRUE
CD38	CD38	TRUE	TRUE
PD1	PD-1	TRUE	TRUE
LAG3	LAG3	TRUE	TRUE
CCR7	CCR7	TRUE	TRUE
HLADR	HLA-DR	TRUE	TRUE
CD11B	CD11B	TRUE	TRUE
CD25	CD25	TRUE	TRUE
CD38_HLADR	CD38+HLA-DR+	TRUE	FALSE
LOX1	LOX-1	TRUE	TRUE

Signatures

Company	[Company Name]
By:	
Name:	
Title:	
Email:	
Address:	

Company	Teiko Bio, Inc.
By:	
Name:	
Title:	
Email:	
Address:	