



CERTIFICATE OF ANALYSIS

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COA-05090

Product Description: Cytokine Panel 1 (human) V-PLEX™ and V-PLEX Plus

Kit Catalog Numbers: K15050D-1, K15050D-2, K15050D-4, K15050G-1, K15050G-2, K15050G-4

Kit Lot Number: K0080260

Expiration Date: 30 NOV 2016

Acceptance Data:

			Assay				
Metric		Specifications	hu GM-CSF	hu IL-1 α	hu IL-5	hu IL-7	hu IL-12/23 p40
% Recovery Concentration	Calibrators	80% - 120%	Pass	Pass	Pass	Pass	Pass
	Controls	80% - 120%	Pass	Pass	Pass	Pass	Pass
	ULOQ	80% - 120%	Pass	Pass	Pass	Pass	Pass
	LLOQ	80% - 120%	Pass	Pass	Pass	Pass	Pass
% Recovery CV	Calibrators	< 20%	Pass	Pass	Pass	Pass	Pass
	Controls	< 20%	Pass	Pass	Pass	Pass	Pass
	ULOQ	< 20%	Pass	Pass	Pass	Pass	Pass
	LLOQ	< 20%	Pass	Pass	Pass	Pass	Pass
Non-specific binding		< 1%	Pass	Pass	Pass	Pass	Pass

			Assay				
Metric		Specifications	hu IL-15	hu IL-16	hu IL-17A	hu TNF- β	hu VEGF
% Recovery Concentration	Calibrators	80% - 120%	Pass	Pass	Pass	Pass	Pass
	Controls	80% - 120%	Pass	Pass	Pass	Pass	Pass
	ULOQ	80% - 120%	Pass	Pass	Pass	Pass	Pass
	LLOQ	80% - 120%	Pass	Pass	Pass	Pass	Pass
% Recovery CV	Calibrators	< 20%	Pass	Pass	Pass	Pass	Pass
	Controls	< 20%	Pass	Pass	Pass	Pass	Pass
	ULOQ	< 20%	Pass	Pass	Pass	Pass	Pass
	LLOQ	< 20%	Pass	Pass	Pass	Pass	Pass
Non-specific binding		< 1%	Pass	Pass	Pass	Pass	Pass

Concentration of Materials Tested:

Units = pg/mL	Assay									
	hu GM-CSF	hu IL-1 α	hu IL-5	hu IL-7	hu IL-12/23 p40	hu IL-15	hu IL-16	hu IL-17A	hu TNF- β	hu VEGF
Reconstituted Calibrator	978	368	883	640	2840	673	2450	5940	591	961
Reconstituted Control 1 (A00C0251)	285	135	303	232	1122	191	1208	1760	168	338
Reconstituted Control 2 (A00C0252)	67.1	30.2	76.5	58.5	257	48.3	261	431	40.4	72.3
Reconstituted Control 3 (A00C0263)	21.4	13.7	64.1	17.8	84.2	16.2	148	210	11.5	50.2
ULOQ	860	324	777	563	2500	592	2160	5230	520	845
LLOQ	1.53	2.62	1.39	1.00	4.46	1.06	17.4	9.32	0.927	1.51



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Standard Curve Data from Kit QC:

hu GM-CSF		
Conc., (pg/mL)	Average Signal	%CV
978	497 426	2.3
245	142 406	2.8
61.1	38 056	3.3
15.3	9939	2.8
3.82	2571	2.8
0.955	778	3.9
0.239	299	8.0
0	148	13.1

hu IL-1 α		
Conc., (pg/mL)	Average Signal	%CV
368	285 881	2.7
92.0	73 298	5.1
23.0	19 469	4.4
5.75	5172	5.6
1.44	1580	5.4
0.359	669	11.7
0.090	423	15.3
0	457	32.9

hu IL-5		
Conc., (pg/mL)	Average Signal	%CV
883	904 098	3.0
221	258 092	2.0
55.2	70 704	2.1
13.8	18 353	1.8
3.45	5185	2.9
0.862	1775	3.6
0.216	898	3.3
0	570	10.0

hu IL-7		
Conc., (pg/mL)	Average Signal	%CV
640	458 252	4.6
160	105 126	3.3
40.0	26 069	3.2
10.0	6602	3.4
2.50	1748	4.8
0.625	583	5.9
0.156	261	9.0
0	170	17.6

hu IL-12/23 p40		
Conc., (pg/mL)	Average Signal	%CV
2840	418 380	2.9
710	110 124	2.7
178	28 849	3.4
44.4	7423	2.9
11.1	1981	2.1
2.77	620	3.9
0.693	264	6.5
0	147	12.0

hu IL-15		
Conc., (pg/mL)	Average Signal	%CV
673	610 935	2.9
168	125 534	2.9
42.1	33 182	2.5
10.5	8298	2.4
2.63	2199	2.7
0.657	661	3.2
0.164	269	8.8
0	137	11.1

hu IL-16		
Conc., (pg/mL)	Average Signal	%CV
2450	507 071	3.4
613	85 199	3.7
153	13 903	3.5
38.3	2678	4.5
9.57	784	4.9
2.39	302	9.6
0.598	188	10.6
0	140	17.1

hu IL-17A		
Conc., (pg/mL)	Average Signal	%CV
5940	1 607 575	3.1
1485	429 550	3.3
371	110 619	2.6
92.8	27 826	2.9
23.2	6985	4.3
5.80	1905	3.7
1.45	637	17.2
0	140	19.8

hu TNF- β		
Conc., (pg/mL)	Average Signal	%CV
591	1 403 497	1.9
148	332 126	2.0
36.9	82 756	1.5
9.23	20 573	1.7
2.31	5628	1.3
0.577	1633	2.3
0.144	625	6.0
0	281	8.5

hu VEGF		
Conc., (pg/mL)	Average Signal	%CV
961	861 432	1.8
240	138 645	2.2
60.1	25 882	1.9
15.0	5672	2.5
3.75	1684	2.7
0.938	631	7.2
0.235	350	10.2
0	271	12.3



CERTIFICATE OF ANALYSIS

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Cytokine Panel 1 (human) Kit V-PLEX Components			
Description	Lot Number	Storage Temperature	Expiration Date
Cytokine Panel 1 (human) Plate	Z0045522	2-8°C	31 MAY 2017
Anti-hu GM-CSF Antibody	D0080439	2-8°C	31 JAN 2017
Anti-hu IL-1 α Antibody	D0080440	2-8°C	31 JAN 2017
Anti-hu IL-5 Antibody	D0080441	2-8°C	31 JAN 2017
Anti-hu IL-7 Antibody	D0080442	2-8°C	31 JAN 2017
Anti-hu IL-12/23 p40 Antibody	D0080443	2-8°C	31 JAN 2017
Anti-hu IL-15 Antibody	D0080444	2-8°C	31 JAN 2017
Anti-hu IL-16 Antibody	D0080445	2-8°C	31 JAN 2017
Anti-hu IL-17A Antibody	D0080354	2-8°C	30 NOV 2016
Anti-hu TNF- β Antibody	D0080438	2-8°C	31 JAN 2017
Anti-hu VEGF Antibody	D0080447	2-8°C	31 JAN 2017
Cytokine Panel 1 (human) Calibrator Blend	A0080047	2-8°C	31 DEC 2019
Diluent 43	M0430011	$\leq -10^\circ\text{C}$	28 FEB 2017
Diluent 3	M0030063	$\leq -10^\circ\text{C}$	30 APR 2017
MSD Read Buffer T (4X)	Not Kit Specific	Room Temperature	N/A
Additional Components Included in V-PLEX Plus			
Wash Buffer (20X), 100 mL	Not Kit Specific	Room Temperature	N/A
Plate Seals	Not Kit Specific	Room Temperature	N/A
Cytokine Panel 1 (human) Control 1	Not Kit Specific; See Separate Control Pack COA		
Cytokine Panel 1 (human) Control 2			
Cytokine Panel 1 (human) Control 3			

Statement: The above kit lot was tested using MSD procedures and it conforms to MSD's specifications. The above product is intended for Research Use Only. Not for use in Diagnostic Procedures.

	Name	Function	Signature	Date
Review/Approval	Caitlin Hansen	Quality Control		19 JAN 2015