

CERTIFICATE OF ANALYSIS

Page 1 of 4

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

Kit Catalog Numbers: K15050-Series, K15057-Series, K151RC-Series, K151RG-Series, K156RG-Series, K156RC-Series

Kit Lot Number: K0081379

Expiration Date: 31 May 2022

Acceptance Data/ Percent Recovery Specifications:

		Calibrator		Cytokine Panel 1 (human) Control 1		Cytokine Panel 1 (human) Control 2		Cytokine Panel 1 (human) Control 3	
Spot	Name	Recovery	CV	Recovery	CV	Recovery	CV	Recovery	CV
1	GM-CSF	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%
2	IL-1 α	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%
3	IL-5	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%
4	IL-7	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%
5	IL-12/IL-23p40	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%
6	IL-15	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%
7	IL-16	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%
8	IL-17A	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%
9	TNF- β	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%
10	VEGF	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%

		LLOQ			ULOQ		
Spot	Name	Value	Recovery	CV	Value	Recovery	CV
1	GM-CSF	0.842	80% - 120%	< 20%	750	80% - 120%	< 20%
2	IL-1 α	2.85	80% - 120%	< 20%	278	80% - 120%	< 20%
3	IL-5	4.41	80% - 120%	< 20%	562	80% - 120%	< 20%
4	IL-7	0.546	80% - 120%	< 20%	563	80% - 120%	< 20%
5	IL-12/IL-23p40	1.32	80% - 120%	< 20%	2250	80% - 120%	< 20%
6	IL-15	0.774	80% - 120%	< 20%	525	80% - 120%	< 20%
7	IL-16	19.1	80% - 120%	< 20%	1870	80% - 120%	< 20%
8	IL-17A	3.19	80% - 120%	< 20%	3650	80% - 120%	< 20%
9	TNF- β	0.465	80% - 120%	< 20%	458	80% - 120%	< 20%
10	VEGF	7.70	80% - 120%	< 20%	562	80% - 120%	< 20%

Acceptance Data/ Non Specific Binding Specifications:

Spot	Name	NSB Spec
1	GM-CSF	< 1.0%
2	IL-1 α	< 1.0%
3	IL-5	< 1.0%
4	IL-7	< 1.0%
5	IL-12/IL-23p40	< 1.0%
6	IL-15	< 1.0%
7	IL-16	< 1.0%
8	IL-17A	< 1.0%
9	TNF- β	< 1.0%
10	VEGF	< 1.0%

CERTIFICATE OF ANALYSIS

Page 2 of 4

Stock Concentration of Material Tested :

Spot	Name	Item	Conc	Units
1	GM-CSF	Calibrator	808	pg/mL
		Cytokine Panel 1 (human) Control 1	394	pg/mL
		Cytokine Panel 1 (human) Control 2	61.7	pg/mL
		Cytokine Panel 1 (human) Control 3	8.11	pg/mL
2	IL-1 α	Calibrator	457	pg/mL
		Cytokine Panel 1 (human) Control 1	174	pg/mL
		Cytokine Panel 1 (human) Control 2	57.6	pg/mL
		Cytokine Panel 1 (human) Control 3	17.1	pg/mL
3	IL-5	Calibrator	895	pg/mL
		Cytokine Panel 1 (human) Control 1	326	pg/mL
		Cytokine Panel 1 (human) Control 2	103	pg/mL
		Cytokine Panel 1 (human) Control 3	32.2	pg/mL
4	IL-7	Calibrator	819	pg/mL
		Cytokine Panel 1 (human) Control 1	342	pg/mL
		Cytokine Panel 1 (human) Control 2	52.4	pg/mL
		Cytokine Panel 1 (human) Control 3	8.16	pg/mL
5	IL-12/IL-23p40	Calibrator	3900	pg/mL
		Cytokine Panel 1 (human) Control 1	1320	pg/mL
		Cytokine Panel 1 (human) Control 2	190	pg/mL
		Cytokine Panel 1 (human) Control 3	30.4	pg/mL
6	IL-15	Calibrator	976	pg/mL
		Cytokine Panel 1 (human) Control 1	259	pg/mL
		Cytokine Panel 1 (human) Control 2	40.7	pg/mL
		Cytokine Panel 1 (human) Control 3	7.82	pg/mL
7	IL-16	Calibrator	3040	pg/mL
		Cytokine Panel 1 (human) Control 1	1270	pg/mL
		Cytokine Panel 1 (human) Control 2	349	pg/mL
		Cytokine Panel 1 (human) Control 3	94.7	pg/mL
8	IL-17A	Calibrator	5770	pg/mL
		Cytokine Panel 1 (human) Control 1	2590	pg/mL
		Cytokine Panel 1 (human) Control 2	374	pg/mL
		Cytokine Panel 1 (human) Control 3	58.6	pg/mL
9	TNF- β	Calibrator	654	pg/mL
		Cytokine Panel 1 (human) Control 1	241	pg/mL
		Cytokine Panel 1 (human) Control 2	38.2	pg/mL
		Cytokine Panel 1 (human) Control 3	5.97	pg/mL
10	VEGF	Calibrator	1770	pg/mL
		Cytokine Panel 1 (human) Control 1	472	pg/mL
		Cytokine Panel 1 (human) Control 2	143	pg/mL
		Cytokine Panel 1 (human) Control 3	49.6	pg/mL

Controls tested may not be the same lot as shipped.

CERTIFICATE OF ANALYSIS

Page 3 of 4

Standard Curve Data:

GM-CSF - Spot 1		
Conc. pg/mL	ECL Signal	%CV
808	292,000	4.0
202	84,900	2.8
50.5	21,800	2.2
12.6	5,460	1.9
3.16	1,500	5.1
0.789	524	4.3
0.197	271	6.5
0.00	176	14.0

IL-1 α - Spot 2		
Conc. pg/mL	ECL Signal	%CV
457	468,000	3.6
114	140,000	3.2
28.6	35,100	2.7
7.14	9,160	2.8
1.79	2,630	5.4
0.446	1,560	45.0
0.112	596	7.7
0.00	484	18.0

IL-5 - Spot 3		
Conc. pg/mL	ECL Signal	%CV
895	855,000	4.9
224	248,000	3.4
55.9	66,000	2.6
14.0	16,200	4.3
3.50	4,870	4.2
0.874	1,780	4.6
0.219	1,050	7.2
0.00	778	13.0

IL-7 - Spot 4		
Conc. pg/mL	ECL Signal	%CV
819	430,000	3.8
205	112,000	2.0
51.2	28,200	1.7
12.8	7,070	2.9
3.20	1,880	2.6
0.800	609	4.8
0.200	265	8.1
0.00	161	14.0

IL-12/IL-23p40 - Spot 5		
Conc. pg/mL	ECL Signal	%CV
3900	965,000	1.9
975	291,000	2.1
244	76,600	2.7
60.9	19,300	3.8
15.2	4,930	1.5
3.81	1,380	1.7
0.952	496	4.1
0.00	180	10.0

IL-15 - Spot 6		
Conc. pg/mL	ECL Signal	%CV
976	755,000	2.6
244	154,000	3.7
61.0	36,800	3.5
15.3	9,160	3.6
3.81	2,410	4.4
0.953	719	3.5
0.238	278	8.8
0.00	129	11.0

IL-16 - Spot 7		
Conc. pg/mL	ECL Signal	%CV
3040	629,000	4.0
760	136,000	3.6
190	25,800	4.2
47.5	5,210	4.2
11.9	1,420	4.5
2.97	453	8.7
0.742	230	9.8
0.00	148	16.0

IL-17A - Spot 8		
Conc. pg/mL	ECL Signal	%CV
5770	1,650,000	3.3
1440	507,000	2.4
361	135,000	1.7
90.2	34,800	2.6
22.5	8,650	3.2
5.63	2,330	3.3
1.41	690	6.1
0.00	221	20.0

TNF- β - Spot 9		
Conc. pg/mL	ECL Signal	%CV
654	938,000	2.4
164	221,000	2.8
40.9	51,600	2.5
10.2	12,800	3.0
2.55	3,740	2.7
0.639	1,100	4.1
0.160	446	7.5
0.00	233	10.0

CERTIFICATE OF ANALYSIS

Page 4 of 4

VEGF - Spot 10		
Conc. pg/mL	ECL Signal	%CV
1770	1,970,000	1.7
443	499,000	2.7
111	112,000	3.1
27.7	25,700	4.3
6.91	6,810	3.5
1.73	1,880	6.1
0.432	676	15.0
0.00	184	14.0

Components:

Description	Lot Number	Storage Temperature	Expiration Date
Cytokine Panel 1 (human) Plate	Z0047228	2-8°C	31 May 2022
Anti-hu GM-CSF Antibody	D0081360	2-8°C	28 Feb 2023
Anti-hu IL-1 α Antibody	D0081415	2-8°C	31 Jul 2023
Anti-hu IL-5 Antibody	D0081361	2-8°C	28 Feb 2023
Anti-hu IL-7 Antibody	D0081417	2-8°C	31 Jul 2023
Anti-hu IL-12/23p40 Antibody	D0081362	2-8°C	28 Feb 2023
Anti-hu IL-15 Antibody	D0081363	2-8°C	30 Apr 2023
Anti-hu IL-16 Antibody	D0081419	2-8°C	31 Jul 2023
Anti-hu IL17A Antibody	D0081208	2-8°C	31 Mar 2023
Anti-hu TNF- β Antibody	D0081365	2-8°C	31 Mar 2023
Anti-hu VEGF Antibody	D0081393	2-8°C	30 Apr 2023
Cytokine Panel 1 (human) Calibrator Blend	A0080227	2-8°C	31 Oct 2024
Diluent 43	M0430036	$\leq -10^{\circ}\text{C}$	31 May 2022
Diluent 3	M0030096	$\leq -10^{\circ}\text{C}$	30 Jun 2022
MSD Read Buffer T	Not Kit Specific	Not Kit Specific	N/A

Additional Components Included in V-PLEX Plus	
Plate Seals	Not Kit Specific
Wash Buffer (20X), 100 mL	Not Kit Specific
Cytokine Panel 1 (human) Control 1	Not Kit Specific
Cytokine Panel 1 (human) Control 2	Not Kit Specific
Cytokine Panel 1 (human) Control 3	Not Kit Specific

	Name	Function	Signature	Date
Review/Approval	Karen Hamilla	Quality		24 FEB 2020