

## CERTIFICATE OF ANALYSIS

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**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; K151RE-Series  
**Kit Lot Number:** K0081486  
**Expiration Date:** 30 Apr 2022

**Acceptance Data/ Percent Recovery Specifications:**

Spot	Name	Calibrator		Cytokine Panel 1 (human) Control 1		Cytokine Panel 1 (human) Control 2		Cytokine Panel 1 (human) Control 3	
		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 $\alpha$	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- $\beta$	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%

Spot	Name	LLOQ			ULOQ		
		Value	Recovery	CV	Value	Recovery	CV
1	GM-CSF	0.842	80% - 120%	< 20%	750	80% - 120%	< 20%
2	IL-1 $\alpha$	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- $\beta$	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 $\alpha$	< 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- $\beta$	< 1.0%
10	VEGF	< 1.0%

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### Stock Concentration of Material Tested :

Spot	Name	Item	Conc	Units
1	GM-CSF	Calibrator	1260	pg/mL
		Cytokine Panel 1 (human) Control 1	435	pg/mL
		Cytokine Panel 1 (human) Control 2	69.6	pg/mL
		Cytokine Panel 1 (human) Control 3	11.2	pg/mL
2	IL-1 $\alpha$	Calibrator	320	pg/mL
		Cytokine Panel 1 (human) Control 1	124	pg/mL
		Cytokine Panel 1 (human) Control 2	38.5	pg/mL
		Cytokine Panel 1 (human) Control 3	13	pg/mL
3	IL-5	Calibrator	857	pg/mL
		Cytokine Panel 1 (human) Control 1	334	pg/mL
		Cytokine Panel 1 (human) Control 2	107	pg/mL
		Cytokine Panel 1 (human) Control 3	33.1	pg/mL
4	IL-7	Calibrator	807	pg/mL
		Cytokine Panel 1 (human) Control 1	346	pg/mL
		Cytokine Panel 1 (human) Control 2	53.2	pg/mL
		Cytokine Panel 1 (human) Control 3	9.3	pg/mL
5	IL-12/IL-23p40	Calibrator	3380	pg/mL
		Cytokine Panel 1 (human) Control 1	1490	pg/mL
		Cytokine Panel 1 (human) Control 2	225	pg/mL
		Cytokine Panel 1 (human) Control 3	39.8	pg/mL
6	IL-15	Calibrator	941	pg/mL
		Cytokine Panel 1 (human) Control 1	311	pg/mL
		Cytokine Panel 1 (human) Control 2	50.5	pg/mL
		Cytokine Panel 1 (human) Control 3	9.58	pg/mL
7	IL-16	Calibrator	2910	pg/mL
		Cytokine Panel 1 (human) Control 1	1310	pg/mL
		Cytokine Panel 1 (human) Control 2	339	pg/mL
		Cytokine Panel 1 (human) Control 3	103	pg/mL
8	IL-17A	Calibrator	6040	pg/mL
		Cytokine Panel 1 (human) Control 1	2220	pg/mL
		Cytokine Panel 1 (human) Control 2	305	pg/mL
		Cytokine Panel 1 (human) Control 3	46.4	pg/mL
9	TNF- $\beta$	Calibrator	623	pg/mL
		Cytokine Panel 1 (human) Control 1	213	pg/mL
		Cytokine Panel 1 (human) Control 2	35.4	pg/mL
		Cytokine Panel 1 (human) Control 3	9.07	pg/mL
10	VEGF	Calibrator	1350	pg/mL
		Cytokine Panel 1 (human) Control 1	437	pg/mL
		Cytokine Panel 1 (human) Control 2	135	pg/mL
		Cytokine Panel 1 (human) Control 3	45.8	pg/mL

Controls tested may not be the same lot as shipped.

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### Standard Curve Data:

GM-CSF - Spot 1		
Conc. pg/mL	ECL Signal	%CV
1260	418,000	2.5
315	120,000	2.9
78.8	30,900	2.1
19.7	7,940	3.6
4.92	2,180	3.0
1.23	755	4.4
0.308	350	9.6
0.00	219	12.0

IL-1 $\alpha$ - Spot 2		
Conc. pg/mL	ECL Signal	%CV
320	194,000	3.4
80.0	52,100	3.6
20.0	13,500	3.7
5.00	3,580	3.6
1.25	1,330	2.7
0.313	708	3.4
0.0781	546	5.6
0.00	512	8.0

IL-5 - Spot 3		
Conc. pg/mL	ECL Signal	%CV
857	507,000	6.1
214	137,000	4.1
53.6	34,100	3.4
13.4	8,490	3.6
3.35	2,400	4.5
0.837	798	6.3
0.209	410	5.1
0.00	283	14.0

IL-7 - Spot 4		
Conc. pg/mL	ECL Signal	%CV
807	540,000	3.3
202	138,000	2.4
50.4	34,400	1.5
12.6	8,590	2.4
3.15	2,350	2.9
0.788	729	4.2
0.197	305	8.0
0.00	158	14.0

IL-12/IL-23p40 - Spot 5		
Conc. pg/mL	ECL Signal	%CV
3380	716,000	1.5
845	217,000	1.9
211	58,900	2.1
52.8	15,100	1.8
13.2	4,130	1.9
3.30	1,190	2.5
0.825	444	5.2
0.00	182	11.0

IL-15 - Spot 6		
Conc. pg/mL	ECL Signal	%CV
941	662,000	1.6
235	128,000	2.6
58.8	32,000	2.3
14.7	7,980	2.4
3.68	2,090	2.7
0.919	618	3.2
0.230	260	11.0
0.00	126	16.0

IL-16 - Spot 7		
Conc. pg/mL	ECL Signal	%CV
2910	1,060,000	5.8
728	218,000	3.7
182	39,600	3.8
45.5	8,090	2.7
11.4	2,120	4.3
2.84	650	4.4
0.710	298	7.8
0.00	186	8.6

IL-17A - Spot 8		
Conc. pg/mL	ECL Signal	%CV
6040	1,670,000	4.0
1510	476,000	2.0
378	121,000	1.3
94.4	30,400	3.0
23.6	7,760	1.9
5.90	2,090	2.8
1.47	601	4.6
0.00	120	18.0

TNF- $\beta$ - Spot 9		
Conc. pg/mL	ECL Signal	%CV
623	783,000	1.8
156	165,000	2.0
38.9	37,100	3.0
9.73	9,000	1.9
2.43	2,470	2.3
0.608	750	3.3
0.152	320	6.8
0.00	169	12.0

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VEGF - Spot 10		
Conc. pg/mL	ECL Signal	%CV
1350	883,000	2.2
338	194,000	2.3
84.4	33,900	1.9
21.1	6,240	3.3
5.27	1,570	2.7
1.32	492	5.6
0.330	239	11.0
0.00	155	16.0


**Components:**

Description	Lot Number	Storage Temperature	Expiration Date
Cytokine Panel 1 (human) Plate	Z0047325	2-8°C	31 Oct 2022
Anti-hu GM-CSF Antibody	D0081205	2-8°C	30 Jun 2022
Anti-hu IL-1 $\alpha$ Antibody	D0081206	2-8°C	31 May 2022
Anti-hu IL-5 Antibody	D0081184	2-8°C	30 Apr 2022
Anti-hu IL-7 Antibody	D0081185	2-8°C	30 Apr 2022
Anti-hu IL-12/23p40 Antibody	D0081186	2-8°C	30 Apr 2022
Anti-hu IL-15 Antibody	D0081363	2-8°C	30 Apr 2023
Anti-hu IL-16 Antibody	D0081364	2-8°C	30 Apr 2023
Anti-hu IL-17A Antibody	D0081208	2-8°C	31 Mar 2023
Anti-hu TNF- $\beta$ Antibody	D0081365	2-8°C	31 Mar 2023
Anti-hu VEGF Antibody	D0081273	2-8°C	31 Aug 2022
Cytokine Panel 1 (human) Calibrator Blend	A0080240	2-8°C	30 Nov 2024
Diluent 43	M0430039	$\leq$ -10°C	30 Sep 2022
Diluent 3	M0030097	$\leq$ -10°C	31 Aug 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), 100mL	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

**Statement:**

The above product is intended for Research Use Only. Not for use in Diagnostic Procedures.

	Name	Function	Signature	Date
<b>Review/Approval</b>	Karen Hamilla	Quality		11 SEP 2020