



## CERTIFICATE OF ANALYSIS

Page 1 of 5

**Product Description:** V-PLEX® and V-PLEX Plus Cytokine Panel 1 (human)  
**Kit Catalog Numbers:** K15050-series  
**Kit Lot Number:** K0080665  
**Expiration Date:** 31 Jan 2019

### 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	hu GM-CSF	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%
2	hu IL-1 $\alpha$	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%
3	hu IL-5	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%
4	hu IL-7	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%
5	hu IL-12/23p40	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%
6	hu IL-15	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%
7	hu IL-16	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%
8	hu IL-17A	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%
9	hu TNF- $\beta$	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%
10	hu VEGF	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%

Spot	Name	LLOQ			ULOQ		
		Value	Recovery	CV	Value	Recovery	CV
1	hu GM-CSF	1.90	80% - 120%	< 20%	750	80% - 120%	< 20%
2	hu IL-1 $\alpha$	2.85	80% - 120%	< 20%	278	80% - 120%	< 20%
3	hu IL-5	6.28	80% - 120%	< 20%	562	80% - 120%	< 20%
4	hu IL-7	1.37	80% - 120%	< 20%	563	80% - 120%	< 20%
5	hu IL-12/23p40	5.68	80% - 120%	< 20%	2250	80% - 120%	< 20%
6	hu IL-15	1.40	80% - 120%	< 20%	525	80% - 120%	< 20%
7	hu IL-16	19.1	80% - 120%	< 20%	1870	80% - 120%	< 20%
8	hu IL-17A	9.32	80% - 120%	< 20%	3650	80% - 120%	< 20%
9	hu TNF- $\beta$	1.15	80% - 120%	< 20%	458	80% - 120%	< 20%
10	hu VEGF	7.70	80% - 120%	< 20%	562	80% - 120%	< 20%



## CERTIFICATE OF ANALYSIS

Page 2 of 5

### Acceptance Data/ Non Specific Binding Specifications:

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

### Stock Concentration of Material Tested :

Spot	Name	Item	Conc	Units
1	hu GM-CSF	Calibrator	1150	pg/mL
		Cytokine Panel 1 (human) Control 1	388	pg/mL
		Cytokine Panel 1 (human) Control 2	60.6	pg/mL
		Cytokine Panel 1 (human) Control 3	9.33	pg/mL
2	hu IL-1 $\alpha$	Calibrator	468	pg/mL
		Cytokine Panel 1 (human) Control 1	203	pg/mL
		Cytokine Panel 1 (human) Control 2	61.9	pg/mL
		Cytokine Panel 1 (human) Control 3	20.3	pg/mL
3	hu IL-5	Calibrator	850	pg/mL
		Cytokine Panel 1 (human) Control 1	343	pg/mL
		Cytokine Panel 1 (human) Control 2	108	pg/mL
		Cytokine Panel 1 (human) Control 3	32.8	pg/mL
4	hu IL-7	Calibrator	1010	pg/mL
		Cytokine Panel 1 (human) Control 1	386	pg/mL
		Cytokine Panel 1 (human) Control 2	59.2	pg/mL
		Cytokine Panel 1 (human) Control 3	9.41	pg/mL
5	hu IL-12/23p40	Calibrator	3730	pg/mL
		Cytokine Panel 1 (human) Control 1	1580	pg/mL
		Cytokine Panel 1 (human) Control 2	236	pg/mL
		Cytokine Panel 1 (human) Control 3	39.4	pg/mL



## CERTIFICATE OF ANALYSIS

Page 3 of 5

6	hu IL-15	Calibrator	886	pg/mL
		Cytokine Panel 1 (human) Control 1	302	pg/mL
		Cytokine Panel 1 (human) Control 2	53	pg/mL
		Cytokine Panel 1 (human) Control 3	9.62	pg/mL
7	hu IL-16	Calibrator	3120	pg/mL
		Cytokine Panel 1 (human) Control 1	1420	pg/mL
		Cytokine Panel 1 (human) Control 2	363	pg/mL
		Cytokine Panel 1 (human) Control 3	106	pg/mL
8	hu IL-17A	Calibrator	6620	pg/mL
		Cytokine Panel 1 (human) Control 1	2640	pg/mL
		Cytokine Panel 1 (human) Control 2	387	pg/mL
		Cytokine Panel 1 (human) Control 3	54.4	pg/mL
9	hu TNF- $\beta$	Calibrator	693	pg/mL
		Cytokine Panel 1 (human) Control 1	261	pg/mL
		Cytokine Panel 1 (human) Control 2	43.8	pg/mL
		Cytokine Panel 1 (human) Control 3	5.54	pg/mL
10	hu VEGF	Calibrator	1340	pg/mL
		Cytokine Panel 1 (human) Control 1	429	pg/mL
		Cytokine Panel 1 (human) Control 2	136	pg/mL
		Cytokine Panel 1 (human) Control 3	49	pg/mL

Controls tested may not be the same lot as shipped.

### Standard Curve Data:

hu GM-CSF - Spot 1		
Conc. pg/mL	ECL Signal	%CV
1150	450,000	2.0
288	137,000	3.4
71.9	34,700	2.5
18.0	9,030	3.0
4.49	2,290	2.4
1.12	714	4.2
0.281	294	8.2
0.00	170	12.0

hu IL-1 $\alpha$ - Spot 2		
Conc. pg/mL	ECL Signal	%CV
468	426,000	2.7
117	117,000	2.6
29.3	30,400	4.2
7.31	7,680	2.8
1.83	2,130	3.0
0.457	846	13.0
0.114	398	5.6
0.00	536	14.0

hu IL-5 - Spot 3		
Conc. pg/mL	ECL Signal	%CV
850	852,000	3.1
213	247,000	2.0
53.1	64,200	2.0
13.3	16,200	2.2
3.32	4,450	2.6
0.830	1,470	4.2
0.208	751	4.5
0.00	470	10.0



**CERTIFICATE OF ANALYSIS**

Page 4 of 5

hu IL-7 - Spot 4		
Conc. pg/mL	ECL Signal	%CV
1010	706,000	4.0
253	169,000	2.9
63.1	41,700	3.8
15.8	10,200	2.8
3.95	2,610	4.9
0.986	760	4.4
0.247	294	6.6
0.00	138	25.0

hu IL-12/23p40 - Spot 5		
Conc. pg/mL	ECL Signal	%CV
3730	699,000	3.8
933	199,000	1.9
233	52,300	2.7
58.3	13,200	2.6
14.6	3,380	2.5
3.64	974	2.9
0.911	355	7.7
0.00	148	18.0

hu IL-15 - Spot 6		
Conc. pg/mL	ECL Signal	%CV
886	712,000	2.4
222	136,000	2.1
55.4	33,700	2.5
13.8	8,530	2.5
3.46	2,220	2.9
0.865	658	3.4
0.216	272	7.9
0.00	140	14.0

hu IL-16 - Spot 7		
Conc. pg/mL	ECL Signal	%CV
3120	939,000	4.8
780	200,000	3.9
195	35,300	4.0
48.8	7,150	4.9
12.2	1,890	3.9
3.05	600	7.2
0.762	296	12.0
0.00	245	17.0

hu IL-17A - Spot 8		
Conc. pg/mL	ECL Signal	%CV
6620	1,630,000	3.7
1660	451,000	3.3
414	111,000	2.8
103	27,400	4.3
25.9	7,000	9.8
6.46	1,850	8.9
1.62	556	7.0
0.00	151	26.0

hu TNF-β - Spot 9		
Conc. pg/mL	ECL Signal	%CV
693	862,000	2.5
173	194,000	2.6
43.3	44,700	2.1
10.8	10,700	3.3
2.71	3,260	2.6
0.677	994	3.0
0.169	434	5.6
0.00	242	12.0

hu VEGF - Spot 10		
Conc. pg/mL	ECL Signal	%CV
1340	1,350,000	1.8
335	265,000	2.2
83.8	49,000	1.9
20.9	10,400	2.9
5.23	2,710	2.5
1.31	784	3.0
0.327	342	8.4
0.00	284	15.0



## CERTIFICATE OF ANALYSIS

Page 5 of 5

### Components:

Description	Lot Number	Storage Temperature	Expiration Date
Cytokine Panel 1 (human) Plate	Z0046217	2-8°C	30 Apr 2019
Anti-hu GM-CSF	D0080806	2-8°C	31 Mar 2019
Anti-hu IL-1 $\alpha$	D0080807	2-8°C	31 Mar 2019
Anti-hu IL-5	D0080808	2-8°C	31 Mar 2019
Anti-hu IL-7	D0080809	2-8°C	31 Mar 2019
Anti-hu IL-12/23 p40	D0080810	2-8°C	31 Mar 2019
Anti-hu IL-15	D0080811	2-8°C	31 Mar 2019
Anti-hu IL-16	D0080812	2-8°C	31 Mar 2019
Anti-hu IL-17A	D0080813	2-8°C	31 Mar 2019
Anti-hu TNF- $\beta$	D0080814	2-8°C	31 Mar 2019
Anti-hu VEGF	D0080815	2-8°C	31 Mar 2019
Cytokine Panel 1 (human) Calibrator Blend	A0080108	2-8°C	30 Nov 2021
Diluent 43	M0430018	$\leq -10^{\circ}\text{C}$	31 Jan 2019
Diluent 3	M0030074	$\leq -10^{\circ}\text{C}$	30 Jun 2019
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>	Vanessa Castleberry	Quality Assurance	<i>Vanessa Castleberry</i>	01MAY2017