

## CERTIFICATE OF ANALYSIS

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

**Kit Catalog Numbers:** K15057-Series

**Kit Lot Number:** K0080995

**Expiration Date:** 31 Jul 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	NHP GM-CSF	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%
3	NHP IL-5	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%
4	NHP IL-7	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%
5	NHP IL-12/23p40	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%
6	NHP IL-15	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%
7	NHP IL-16	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%
8	NHP IL-17A	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%
9	NHP TNF-β	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%
10	NHP VEGF	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%	80% - 120%	< 20%

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

**Acceptance Data/ Non Specific Binding Specifications:**

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

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**Stock Concentration of Material Tested :**

Spot	Name	Item	Conc	Units
1	NHP GM-CSF	Calibrator	1100	pg/mL
		Cytokine Panel 1 (human) Control 1	370	pg/mL
		Cytokine Panel 1 (human) Control 2	70	pg/mL
		Cytokine Panel 1 (human) Control 3	10	pg/mL
3	NHP IL-5	Calibrator	877	pg/mL
		Cytokine Panel 1 (human) Control 1	310	pg/mL
		Cytokine Panel 1 (human) Control 2	110	pg/mL
		Cytokine Panel 1 (human) Control 3	34	pg/mL
4	NHP IL-7	Calibrator	881	pg/mL
		Cytokine Panel 1 (human) Control 1	330	pg/mL
		Cytokine Panel 1 (human) Control 2	60	pg/mL
		Cytokine Panel 1 (human) Control 3	10	pg/mL
5	NHP IL-12/23p40	Calibrator	3690	pg/mL
		Cytokine Panel 1 (human) Control 1	1360	pg/mL
		Cytokine Panel 1 (human) Control 2	235	pg/mL
		Cytokine Panel 1 (human) Control 3	40	pg/mL
6	NHP IL-15	Calibrator	842	pg/mL
		Cytokine Panel 1 (human) Control 1	280	pg/mL
		Cytokine Panel 1 (human) Control 2	50	pg/mL
		Cytokine Panel 1 (human) Control 3	10	pg/mL
7	NHP IL-16	Calibrator	2800	pg/mL
		Cytokine Panel 1 (human) Control 1	1180	pg/mL
		Cytokine Panel 1 (human) Control 2	335	pg/mL
		Cytokine Panel 1 (human) Control 3	110	pg/mL
8	NHP IL-17A	Calibrator	6480	pg/mL
		Cytokine Panel 1 (human) Control 1	2210	pg/mL
		Cytokine Panel 1 (human) Control 2	310	pg/mL
		Cytokine Panel 1 (human) Control 3	50	pg/mL
9	NHP TNF- $\beta$	Calibrator	733	pg/mL
		Cytokine Panel 1 (human) Control 1	230	pg/mL
		Cytokine Panel 1 (human) Control 2	42	pg/mL
		Cytokine Panel 1 (human) Control 3	6.4	pg/mL
10	NHP VEGF	Calibrator	1490	pg/mL
		Cytokine Panel 1 (human) Control 1	410	pg/mL
		Cytokine Panel 1 (human) Control 2	140	pg/mL
		Cytokine Panel 1 (human) Control 3	50	pg/mL

Controls tested may not be the same lot as shipped.

The calibrator and controls for this assay contain a human recombinant cytokine calibrator sequence that is highly homologous to the non-human primate cytokine. This assay has been verified to cross-react with homologs of rhesus and cynomolgus monkeys. See Product Insert for experimental data.

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## Standard Curve Data:

NHP GM-CSF - Spot 1		
Conc. pg/mL	ECL Signal	%CV
1100	396,000	2.8
275	116,000	2.9
68.8	29,900	2.5
17.2	7,680	2.1
4.30	2,030	3.8
1.07	660	5.9
0.269	275	9.2
0.00	154	7.1

NHP IL-5 - Spot 3		
Conc. pg/mL	ECL Signal	%CV
877	604,000	3.2
219	169,000	3.5
54.8	42,900	4.3
13.7	11,300	3.8
3.43	2,990	4.9
0.856	988	4.1
0.214	454	6.3
0.00	282	6.2

NHP IL-7 - Spot 4		
Conc. pg/mL	ECL Signal	%CV
881	559,000	3.0
220	137,000	2.6
55.1	33,300	1.5
13.8	8,430	2.1
3.44	2,170	1.8
0.860	675	5.6
0.215	267	14.0
0.00	156	18.0

NHP IL-12/23p40 - Spot 5		
Conc. pg/mL	ECL Signal	%CV
3690	611,000	1.8
923	175,000	1.3
231	45,100	1.8
57.7	11,500	2.7
14.4	3,010	2.2
3.60	881	3.3
0.901	345	6.4
0.00	155	10.0

NHP IL-15 - Spot 6		
Conc. pg/mL	ECL Signal	%CV
842	582,000	2.5
211	106,000	2.4
52.6	24,400	2.9
13.2	6,130	2.7
3.29	1,630	3.1
0.822	471	5.0
0.206	208	11.0
0.00	101	18.0

NHP IL-16 - Spot 7		
Conc. pg/mL	ECL Signal	%CV
2800	505,000	3.9
700	95,400	4.0
175	16,800	3.6
43.8	3,450	4.5
10.9	975	3.1
2.73	312	5.7
0.684	173	13.0
0.00	129	14.0

NHP IL-17A - Spot 8		
Conc. pg/mL	ECL Signal	%CV
6480	1,550,000	2.9
1620	434,000	1.8
405	110,000	2.4
101	27,800	2.8
25.3	6,890	3.4
6.33	1,900	3.7
1.58	660	10.0
0.00	247	24.0

NHP TNF-β - Spot 9		
Conc. pg/mL	ECL Signal	%CV
733	1,210,000	1.7
183	279,000	2.7
45.8	65,000	2.3
11.5	16,100	1.7
2.86	4,600	2.7
0.716	1,300	2.9
0.179	468	5.7
0.00	205	13.0

NHP VEGF - Spot 10		
Conc. pg/mL	ECL Signal	%CV
1490	1,170,000	2.3
373	248,000	2.7
93.1	47,300	2.8
23.3	10,100	2.7
5.82	2,660	2.2
1.46	770	4.1
0.364	303	8.5
0.00	149	13.0

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**Components:**

Description	Lot Number	Storage Temperature	Expiration Date
Cytokine Panel 1 (human) Plate	Z0046806	2-8°C	30 Sep 2020
Anti-hu GM-CSF Antibody	D0080885	2-8°C	31 Jul 2019
Anti-hu IL-5 Antibody	D0081054	2-8°C	30 Apr 2020
Anti-hu IL-7 Antibody	D0081055	2-8°C	30 Apr 2020
Anti-hu IL-12/23p40 Antibody	D0081040	2-8°C	31 Mar 2020
Anti-hu IL-15 Antibody	D0080983	2-8°C	31 Oct 2019
Anti-hu IL-16 Antibody	D0081056	2-8°C	30 Apr 2020
Anti-hu IL-17A Antibody	D0080892	2-8°C	31 Jul 2019
Anti-hu TNF-β Antibody	D0081057	2-8°C	30 Apr 2020
Anti-hu VEGF Antibody	D0081058	2-8°C	31 May 2020
Cytokine Panel 1 (human) Calibrator Blend	A0080144	2-8°C	31 Aug 2022
Diluent 43	M0430024	≤ -10°C	31 Jan 2020
Diluent 3	M0030081	≤ -10°C	30 Sep 2020
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

**Statement:**

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

	Name	Function	Signature	Date
<b>Review/Approval</b>	Dawn Stollar	Quality Assurance		29 MAY 2018