

CERTIFICATE OF ANALYSIS

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Product Description: V-PLEX® and V-PLEX Plus TH17 Panel 1 (human) Kit
Kit Catalog Numbers: K15085-series
Kit Lot Number: K0081221
Expiration Date: 28 Feb 2021

Acceptance Data/ Percent Recovery Specifications:

| Spot | Name | Calibrator | | TH17 Panel 1 (human) Control 1 | | TH17 Panel 1 (human) Control 2 | | TH17 Panel 1 (human) Control 3 | |
|------|-----------|------------|-------|--------------------------------|-------|--------------------------------|-------|--------------------------------|-------|
| | | Recovery | CV | Recovery | CV | Recovery | CV | Recovery | CV |
| 1 | hu IL-17A | 80% - 120% | < 20% | 80% - 120% | < 20% | 80% - 120% | < 20% | 80% - 120% | < 20% |
| 4 | hu IL-21 | 80% - 120% | < 20% | 75% - 125%* | < 20% | 75% - 125%* | < 20% | 75% - 125%* | < 20% |
| 5 | hu IL-31 | 80% - 120% | < 20% | 80% - 120% | < 20% | 80% - 120% | < 20% | 80% - 120% | < 20% |
| 6 | hu IL-27 | 80% - 120% | < 20% | 80% - 120% | < 20% | 80% - 120% | < 20% | 80% - 120% | < 20% |
| 7 | hu IL-23 | 80% - 120% | < 20% | 80% - 120% | < 20% | 80% - 120% | < 20% | 80% - 120% | < 20% |
| 8 | hu IL-22 | 80% - 120% | < 20% | 80% - 120% | < 20% | 80% - 120% | < 20% | 80% - 120% | < 20% |
| 10 | hu MIP-3α | 80% - 120% | < 20% | 80% - 120%* | < 20% | 80% - 120%* | < 20% | 80% - 120%* | < 20% |

* See Additional Comments.

| Spot | Name | LLOQ | | | ULOQ | | |
|------|-----------|-------|------------|--------|-------|------------|-------|
| | | Value | Recovery | CV | Value | Recovery | CV |
| 1 | hu IL-17A | 5.86 | 80% - 120% | < 20% | 1950 | 80% - 120% | < 20% |
| 4 | hu IL-21 | 1.65 | 80% - 120% | < 20% | 650 | 80% - 120% | < 20% |
| 5 | hu IL-31 | 4.22 | 80% - 120% | < 20% | 650 | 80% - 120% | < 20% |
| 6 | hu IL-27 | 38.7 | 80% - 120% | < 20% | 13000 | 80% - 120% | < 20% |
| 7 | hu IL-23 | 4.60 | 80% - 120% | < 20%* | 3250 | 80% - 120% | < 20% |
| 8 | hu IL-22 | 2.78 | 80% - 120% | < 20% | 325 | 80% - 120% | < 20% |
| 10 | hu MIP-3α | 0.570 | 80% - 120% | < 20%* | 325 | 80% - 120% | < 20% |

* See Additional Comments.

Acceptance Data/ Non Specific Binding Specifications:

| Spot | Name | NSB Spec |
|------|-----------|----------|
| 1 | hu IL-17A | < 1.0% |
| 4 | hu IL-21 | < 1.0% |
| 5 | hu IL-31 | < 1.0% |
| 6 | hu IL-27 | < 1.0% |
| 7 | hu IL-23 | < 1.0% |
| 8 | hu IL-22 | < 1.0% |
| 10 | hu MIP-3a | < 1.0% |

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Stock Concentration of Material Tested :

| Spot | Name | Item | Conc | Units |
|------|-------------------|--------------------------------|-------|-------|
| 1 | hu IL-17A | Calibrator | 2900 | pg/mL |
| | | TH17 Panel 1 (human) Control 1 | 2690 | pg/mL |
| | | TH17 Panel 1 (human) Control 2 | 429 | pg/mL |
| | | TH17 Panel 1 (human) Control 3 | 61.4 | pg/mL |
| 4 | hu IL-21 | Calibrator | 842 | pg/mL |
| | | TH17 Panel 1 (human) Control 1 | 929 | pg/mL |
| | | TH17 Panel 1 (human) Control 2 | 145 | pg/mL |
| | | TH17 Panel 1 (human) Control 3 | 25 | pg/mL |
| 5 | hu IL-31 | Calibrator | 962 | pg/mL |
| | | TH17 Panel 1 (human) Control 1 | 931 | pg/mL |
| | | TH17 Panel 1 (human) Control 2 | 145 | pg/mL |
| | | TH17 Panel 1 (human) Control 3 | 21.9 | pg/mL |
| 6 | hu IL-27 | Calibrator | 16100 | pg/mL |
| | | TH17 Panel 1 (human) Control 1 | 18400 | pg/mL |
| | | TH17 Panel 1 (human) Control 2 | 3450 | pg/mL |
| | | TH17 Panel 1 (human) Control 3 | 790 | pg/mL |
| 7 | hu IL-23 | Calibrator | 4600 | pg/mL |
| | | TH17 Panel 1 (human) Control 1 | 4190 | pg/mL |
| | | TH17 Panel 1 (human) Control 2 | 487 | pg/mL |
| | | TH17 Panel 1 (human) Control 3 | 58.2 | pg/mL |
| 8 | hu IL-22 | Calibrator | 551 | pg/mL |
| | | TH17 Panel 1 (human) Control 1 | 547 | pg/mL |
| | | TH17 Panel 1 (human) Control 2 | 103 | pg/mL |
| | | TH17 Panel 1 (human) Control 3 | 17.7 | pg/mL |
| 10 | hu MIP-3 α | Calibrator | 566 | pg/mL |
| | | TH17 Panel 1 (human) Control 1 | 531 | pg/mL |
| | | TH17 Panel 1 (human) Control 2 | 214 | pg/mL |
| | | TH17 Panel 1 (human) Control 3 | 82.3 | pg/mL |

Controls tested may not be the same lot as shipped.

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Standard Curve Data:

| hu IL-17A - Spot 1 | | |
|--------------------|------------|-----|
| Conc. pg/mL | ECL Signal | %CV |
| 2900 | 544,000 | 2.7 |
| 725 | 121,000 | 2.5 |
| 181 | 31,100 | 4.0 |
| 45.3 | 8,030 | 5.2 |
| 11.3 | 2,430 | 3.0 |
| 2.83 | 977 | 8.5 |
| 0.708 | 611 | 5.7 |
| 0.00 | 459 | 9.9 |

| hu IL-21 - Spot 4 | | |
|-------------------|------------|-----|
| Conc. pg/mL | ECL Signal | %CV |
| 842 | 375,000 | 2.2 |
| 211 | 77,900 | 3.5 |
| 52.6 | 17,400 | 4.2 |
| 13.2 | 4,780 | 3.0 |
| 3.29 | 1,630 | 3.5 |
| 0.822 | 874 | 7.5 |
| 0.206 | 673 | 7.4 |
| 0.00 | 601 | 6.9 |

| hu IL-31 - Spot 5 | | |
|-------------------|------------|------|
| Conc. pg/mL | ECL Signal | %CV |
| 962 | 521,000 | 3.6 |
| 241 | 155,000 | 2.0 |
| 60.1 | 42,800 | 1.9 |
| 15.0 | 11,100 | 2.9 |
| 3.76 | 2,930 | 3.5 |
| 0.939 | 859 | 4.1 |
| 0.235 | 314 | 5.7 |
| 0.00 | 130 | 11.0 |

| hu IL-27 - Spot 6 | | |
|-------------------|------------|-----|
| Conc. pg/mL | ECL Signal | %CV |
| 16100 | 118,000 | 7.0 |
| 4030 | 25,600 | 3.6 |
| 1010 | 6,770 | 4.4 |
| 252 | 1,970 | 3.0 |
| 62.9 | 797 | 2.5 |
| 15.7 | 471 | 5.5 |
| 3.93 | 391 | 6.8 |
| 0.00 | 356 | 6.3 |

| hu IL-23 - Spot 7 | | |
|-------------------|------------|------|
| Conc. pg/mL | ECL Signal | %CV |
| 4600 | 398,000 | 4.2 |
| 1150 | 122,000 | 3.3 |
| 288 | 30,600 | 5.7 |
| 71.9 | 7,800 | 8.1 |
| 18.0 | 2,250 | 6.6 |
| 4.49 | 792 | 6.2 |
| 1.12 | 435 | 16.0 |
| 0.00 | 307 | 9.2 |

| hu IL-22 - Spot 8 | | |
|-------------------|------------|------|
| Conc. pg/mL | ECL Signal | %CV |
| 551 | 406,000 | 6.4 |
| 138 | 107,000 | 6.7 |
| 34.4 | 27,600 | 6.7 |
| 8.61 | 7,690 | 6.5 |
| 2.15 | 2,260 | 7.0 |
| 0.538 | 1,020 | 7.3 |
| 0.135 | 702 | 9.2 |
| 0.00 | 605 | 16.0 |

| hu MIP-3 α - Spot 10 | | |
|-----------------------------|------------|------|
| Conc. pg/mL | ECL Signal | %CV |
| 566 | 570,000 | 4.6 |
| 142 | 94,700 | 2.8 |
| 35.4 | 19,700 | 4.6 |
| 8.84 | 4,690 | 5.2 |
| 2.21 | 1,480 | 4.4 |
| 0.553 | 601 | 6.0 |
| 0.138 | 468 | 15.0 |
| 0.00 | 363 | 12.0 |

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Components:

| Description | Lot Number | Storage Temperature | Expiration Date |
|---------------------------------------|------------------|---------------------|-----------------|
| TH17 Panel 1 (human) plate | Z0046950 | 2-8°C | 30 Apr 2021 |
| Anti-hu IL-17A Antibody | D0081135 | 2-8°C | 30 Apr 2022 |
| Anti-hu IL-21 Antibody | D0081136 | 2-8°C | 31 Mar 2022 |
| Anti-hu IL-31 Antibody | D0081140 | 2-8°C | 28 Feb 2022 |
| Anti-hu IL-27 Antibody | D0081139 | 2-8°C | 28 Feb 2022 |
| Anti-hu IL-23 Antibody | D0081138 | 2-8°C | 31 Mar 2022 |
| Anti-hu IL-22 Antibody | D0081137 | 2-8°C | 28 Feb 2022 |
| Anti-hu MIP-3a Antibody | D0081220 | 2-8°C | 30 Jun 2022 |
| TH17 Panel 1 (human) Calibrator Blend | A0080206 | 2-8°C | 31 Jan 2022 |
| Diluent 43 | M0430029 | ≤ -10°C | 30 Apr 2021 |
| Diluent 3 | M0030085 | ≤ -10°C | 28 Feb 2021 |
| 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 |
| TH17 Panel 1 (human) Control 1 | Not Kit Specific |
| TH17 Panel 1 (human) Control 2 | Not Kit Specific |
| TH17 Panel 1 (human) Control 3 | Not Kit Specific |

Additional Comments:

| | Assay | Spot | Specification | Comment |
|---|-----------|------|---------------|---|
| 1 | hu IL-21 | 4 | Control Conc. | Control 2 recovery at 125.2% and Control 3 recovery at 133.0% |
| 2 | hu IL-23 | 7 | LLOQ CV | Observed elevated CVs at target 4.60 pg/mL. Fully conforming at 11.06 pg/mL |
| 3 | hu MIP-3a | 10 | Control Conc. | Control 1 recovery at 158.1%, Control 2 recovery at 158.8% and Control 3 recovery at 168.7% |
| 4 | hu MIP-3a | 10 | LLOQ CV | Observed elevated CVs at target 0.57 pg/mL. Fully conforming at 1.36 pg/mL |

Statement:

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

| | Name | Function | Signature | Date |
|------------------------|--------------|-------------------|--|-------------|
| Review/Approval | Dawn Stollar | Quality Assurance |  | 28 MAR 2019 |