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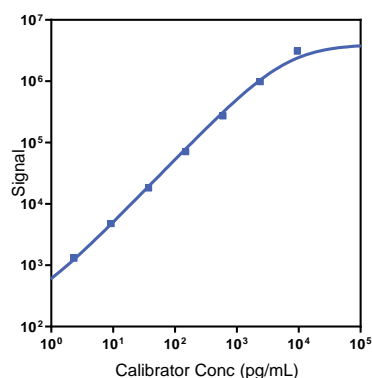
Company Address

MESO SCALE DISCOVERY®
A division of
Meso Scale Diagnostics, LLC.
1601 Research Boulevard
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| Product Options | Catalog Number | Description |
|-----------------------|--|--|
| Multiplex | K15068M, K25068M | U-PLEX Biomarker Group 1 (NHP) |
| Singleplex | K156UMK-1/-2/-4 | U-PLEX NHP GM-CSF Assay with SECTOR™ plates |
| | K156UMK-21/-22/-24 | U-PLEX NHP GM-CSF Assay with QuickPlex® plates |
| | K256UMK-2/-4 | U-PLEX NHP GM-CSF Assay with 384-well plates |
| Antibody Set | B21UM-2/-3 | U-PLEX Human GM-CSF Antibody Set |
| Assay Protocol | U-PLEX Product Inserts are available at www.mesoscale.com | |

The U-PLEX® platform was designed to provide ultimate flexibility for detection of biomarkers in a wide variety of sample types. This datasheet provides the representative performance of the U-PLEX NHP GM-CSF Assay tested on U-PLEX plates run as a multiplex. The data do not represent the product specifications. Under your experimental conditions, the assay may perform differently from the representative data. U-PLEX assays are offered in either singleplex or multiplex; both are available in 96- or 384-well plates. See a U-PLEX product insert for instrument compatibility.

Representative Calibration Curve and Sensitivity



| Assay | Median LLOD (pg/mL) | LLOD Range (pg/mL) |
|--------|---------------------|--------------------|
| GM-CSF | 0.08 | 0.05-0.25 |

The Calibrator curve was fitted with a 4-parameter logistic model with a $1/Y^2$ weighting. The lower limit of detection (LLOD) is a calculated concentration corresponding to 2.5X the standard deviations above the background (zero Calibrator).

Precision

| | Control | Average Conc. (pg/mL) | Average Intra-run Conc. %CV | Inter-run Conc. %CV |
|--------|---------|-----------------------|-----------------------------|---------------------|
| GM-CSF | High | 4,550 | 3.7 | 4.3 |
| | Mid | 464 | 3.1 | 5.8 |
| | Low | 47.2 | 4.0 | 9.0 |

For Research Use Only.
Not for use in diagnostic procedures.

Controls were made by spiking Calibrator into assay diluent at 3 levels within the quantitative range of the assay. Average intra-run concentration %CV is the average %CV of the control replicates within an individual run. Inter-run concentration %CV is the variability of controls across multiple runs.

MSD® U-PLEX NHP GM-CSF

Spike Recovery

| | Spike Level | Serum (N=5) | | Plasma (N=5) | | Cell Culture Media (N=5) | |
|-------------------|-------------|--------------------|------------------|--------------------|------------------|--------------------------|------------------|
| | | Average % Recovery | % Recovery Range | Average % Recovery | % Recovery Range | Average % Recovery | % Recovery Range |
| Cynomolgus Monkey | High | 89 | 74-101 | 102 | 97-107 | 114 | 113-121 |
| | Mid | 94 | 76-107 | 104 | 98-110 | 115 | 112-122 |
| | Low | 93 | 78-100 | 102 | 95-110 | 120 | 117-129 |
| Rhesus Monkey | High | 106 | 102-113 | 103 | 98-113 | 114 | 113-121 |
| | Mid | 104 | 99-113 | 104 | 95-109 | 115 | 112-122 |
| | Low | 102.4 | 89-114 | 102 | 96-111 | 120 | 117-129 |

Normal serum, EDTA plasma, and cell culture media were spiked with Calibrator at 3 levels. Undiluted samples were tested to determine the expected concentration of the analyte. Samples may benefit from additional dilution with assay diluent to reduce matrix effects.

% Recovery = (measured concentration / expected concentration) x 100

Tested Samples

| | Sample Type | Serum (N=10) | Plasma (N=10) | Spiked Serum (N=5) |
|-------------------|----------------|--------------|---------------|--------------------|
| Cynomolgus Monkey | Median (pg/mL) | 0.27 | 0.28 | 0.92 |
| | Range (pg/mL) | ND-1.04 | ND-0.30 | 0.41-1.30 |
| | % Detected | 90 | 80 | 100 |
| Rhesus Monkey | Median (pg/mL) | 0.1 | 0.1 | 0.8 |
| | Range (pg/mL) | ND-0.20 | ND-0.20 | 0.40-11.2 |
| | % Detected | 90 | 80 | 100 |

Normal serum and plasma samples were tested without dilution prior to the assay. ND = not detectable (<LLOD)

Dilution Linearity

| | Fold Dilution | Serum (N=5) | | Plasma (N=5) | | Cell Culture Media (N=5) | |
|-------------------|---------------|--------------------|------------------|--------------------|------------------|--------------------------|------------------|
| | | Average % Recovery | % Recovery Range | Average % Recovery | % Recovery Range | Average % Recovery | % Recovery Range |
| Cynomolgus Monkey | 2 | 108 | 84-121 | 109 | 104-114 | 105 | 102-108 |
| | 4 | 101 | 80-120 | 106 | 100-112 | 106 | 99-111 |
| | 8 | 104 | 73-119 | 101 | 88-112 | 101 | 100-103 |
| Rhesus Monkey | 2 | 97 | 62-112 | 94 | 79-105 | 105 | 102-108 |
| | 4 | 110 | 103-120 | 98 | 82-111 | 106 | 99-111 |
| | 8 | 108 | 101-120 | 100 | 87-115 | 101 | 100-103 |

Normal serum, EDTA plasma, and cell culture media were spiked with Calibrator and tested at different dilutions. Undiluted samples were tested to determine the expected concentration of the analyte. Samples may benefit from additional dilution with assay diluent to reduce matrix effects.

% Recovery = (measured concentration / expected concentration) x 100

MSD U-PLEX NHP GM-CSF

Specificity

To assess specificity, the GM-CSF Antibody Set was tested individually against a larger panel of recombinant human analytes for nonspecific binding (CTACK, Eotaxin, Eotaxin-2, Eotaxin-3, ENA-78, FLT3L, Fractalkine, G-CSF, GM-CSF, GRO- α , I-309, IFN- α 2a, IFN- γ , IL-1 α , IL-1 β , IL-1RA, IL-2, IL-4, IL-5, IL-6, IL-7, IL-8, IL-9, IL-10, IL-12/IL-23p40, IL-12p70, IL-13, IL-15, IL-16, IL-17A, IL-17AF, IL-17B, IL-17C, IL-17D, IL-17F, IL-18, IL-22, IL-23, IP-10, I-TAC, MCP-1, MCP-2, MCP-3, MCP-4, M-CSF, MDC, MIF, MIP-1 α , MIP-1 β , MIP-3 α , MIP-3 β , MIP-5, SDF-1 α , TARC, TNF- α , TNF- β , TPO, TRAIL, VEGF-A, and YKL-40). Nonspecific binding was less than 0.5%.

% Nonspecificity = (nonspecific signal / specific signal) x 100

Diluent Compatibility

Diluents 57 and 3 are provided with this assay. MSD offers a range of assay and antibody diluents for separate purchase. Depending on your assay needs, other diluents may be tested.

Assay Components

Calibrator: GM-CSF is included in Calibrator 1. The full-length recombinant protein is expressed in *E. coli*.

Antibodies: The U-PLEX NHP GM-CSF Assay uses a mouse monoclonal antibody for capture and a rat monoclonal antibody for detection.

Assay generation: A

Note: This datasheet contains representative assay performance data. In custom multiplex formats, the assay may perform differently than the representative data shown.

