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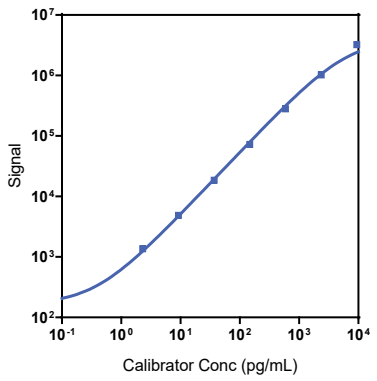
Company Address

MESO SCALE DISCOVERY®
 A division of
 Meso Scale Diagnostics, LLC.
 1601 Research Boulevard
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| Product Options | Catalog Number | Description |
|-----------------|---|--|
| Multiplex | K15067M, K25067M | U-PLEX Biomarker Group 1 (human) |
| | K151AEM, K251AEM | U-PLEX Immuno-Oncology Group 1 (human) |
| | K151ACM, K251ACM | U-PLEX Metabolic Group 1 (human) |
| Singleplex | K151UMK-1/-2/-4 | U-PLEX Human GM-CSF Assay with SECTOR™ plates |
| | K151UMK-21/-22/-24 | U-PLEX Human GM-CSF Assay with QuickPlex® plates |
| | K251UMK-2/-4 | U-PLEX Human GM-CSF Assay with 384-well plates |
| Antibody Set | B21UM-2/-3 | U-PLEX Human GM-CSF Antibody Set |
| Protocol | U-PLEX Product Inserts are available at http://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 Human GM-CSF Assay tested on U-PLEX 96-well SECTOR 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 on 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 | 0.12 | 0.06-0.18 |

The Calibrator curve was fitted with a 4-parameter logistic model with a 1/Y² weighting. The lower limit of detection (LLOD) is a calculated concentration corresponding to 2.5 standard deviations above the background (zero Calibrator).

Precision

| Control | Average Conc. (pg/mL) | Average Intra-run Conc. (%CV) | Inter-run Conc. (%CV) |
|---------|-----------------------|-------------------------------|-----------------------|
| High | 4,660 | 3.3 | 4.0 |
| Mid | 476 | 3.1 | 8.1 |
| Low | 49 | 2.5 | 106 |

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.

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

MSD® U-PLEX Human GM-CSF

Tested Samples

| Sample Type | Serum (N=10) | Plasma (N=10) | Spiked Plasma (N=5) | Spiked Serum (N=5) |
|----------------|--------------|---------------|---------------------|--------------------|
| Median (pg/mL) | 0.31 | 0.28 | 128 | 125 |
| Range (pg/mL) | 0.18-0.61 | 0.25-0.36 | 0.72-884 | 0.71-787 |
| % Detected | 100 | 100 | 100 | 100 |

Normal serum and plasma samples were diluted 2-fold prior to the assay.

Dilution Linearity

| Serum | | | EDTA Plasma | | |
|---------------|--------------------|------------------|---------------|--------------------|------------------|
| Fold Dilution | Average % Recovery | % Recovery Range | Fold Dilution | Average % Recovery | % Recovery Range |
| 2 | 107 | 101-115 | 2 | 108 | 105-113 |
| 4 | 109 | 104-120 | 4 | 111 | 107-115 |
| 8 | 108 | 103-119 | 8 | 115 | 109-125 |

Normal human serum and EDTA plasma 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.

$$\% \text{ Recovery} = (\text{measured concentration} / \text{expected concentration}) \times 100$$

Spike Recovery

| Spike Level | Serum | | EDTA Plasma | |
|-------------|--------------------|------------------|--------------------|------------------|
| | Average % Recovery | % Recovery Range | Average % Recovery | % Recovery Range |
| High | 124 | 116-132 | 109 | 103-115 |
| Mid | 113 | 103-120 | 118 | 115-122 |
| Low | 106 | 96-112 | 106 | 79-124 |

Normal serum and plasma 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.

$$\% \text{ Recovery} = (\text{measured concentration} / \text{expected concentration}) \times 100$$

Specificity

To assess specificity, the GM-CSF Antibody Set was tested individually against a larger panel of analytes for nonspecific binding (APRIL/TNFSF13, BAFF-R/TNFRSF13C, BCMA/TNFRSF17, BDNF, C-Peptide, CD20, CD27, CD28, CD40L (soluble), CD276/B7-H3, CTACK, CTLA-4, Desghrelin, ENA-78, Eotaxin, Eotaxin-2, Eotaxin-3, EPO, E-Selectin, FGF (basic), FGF-23, FLT3L, Fractalkine, FSH, Galectin-9, G-CSF, GITRL/TNFSF18, GTR/TNFRSF18, Ghrelin (Ser3-octanoylated), gp130 (soluble), GIP (1-42), GIP (3-42), GLP-1 (7-36), GLP-1 (9-36), GM-CSF, Granzyme A, Granzyme B, GRO- α , HAVCR2/TIM-3, HVEM/TNFRSF14, ICOS, ICOS-L/B7-H2, I-309, IFN- α 2a, IFN- β , IFN- γ , IL-1 α , IL-1 β , IL-1RA, IL-2, IL-2R α , IL-3, 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-17A/F, IL-17C, IL-17D, IL-17E/IL-25, IL-17F, IL-18, IL-21, IL-22, IL-23, IL-27, IL-29/IFN- λ 1, IL-31, IL-33, Insulin, IP-10, LAG3, Leptin, LH, LIGHT/TNFSF14, MCP-1, MCP-2, MCP-4, M-CSF, MDC, MIF, MIG, MIP-1 α , MIP-1 β , MIP-5, MMP-1, MMP-2, MMP-7, Nectin-4, OX40/TNFRSF4, PD1, PD-L1, PD-L2, Pentraxin 3, Perforin, PIGF, PP, Proinsulin, proMMP-9, P-Selectin, PYY (3-36), RAGE (soluble), RANKL/TNFSF11, RANTES, S100A12, SDF-1 α , Tie-2, TIGIT, TLR1, TNF- α , TNF- β , TNF-RI, TNF-RII, TPO, TRAIL, TSLP, VEGF-A, VEGF-D, VEGFR-1/Flt-1, and YKL-40). Nonspecific binding was less than 2.0%.

$$\% \text{ Nonspecificity} = (\text{nonspecific signal} / \text{specific signal}) \times 100$$

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 GM-CSF Calibrator is a full-length recombinant protein expressed in *E. coli*.

Antibodies: The U-PLEX Human 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 from the representative data shown.

