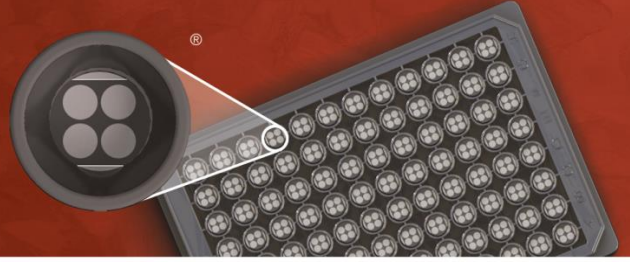
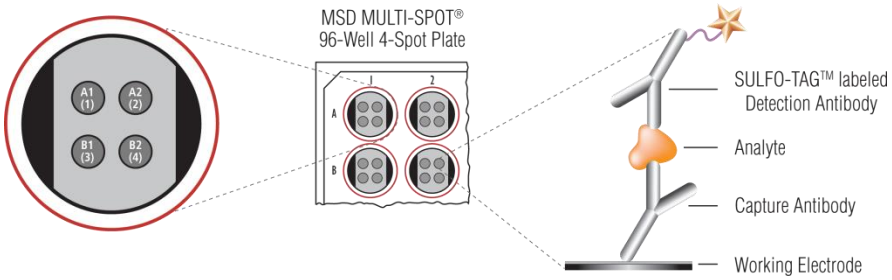
MSD® Human MIP-4 Kit

For quantitative determination in human serum and plasma



Alzheimer's Disease
BioProcess
Cardiac
Cell Signaling
Clinical Immunology
Cytokines
Growth Factors
Hypoxia
Immunogenicity
Inflammation
Metabolic
Oncology
Toxicology
Vascular

1. MIP-4
2. *BSA blocked*
3. *BSA blocked*
4. *BSA blocked*



Macrophage inflammatory protein 4 (MIP-4) (CCL18/PARC/AMAC-1/DC-CK-1/SCYA18) is a C-C chemokine strongly expressed in the lung and to a lesser extent in the thymus and lymph nodes.[1,2] To date, the functional receptor and role of MIP-4 has been difficult to ascertain as it appears to exist only in primates, rendering rodent models unusable. MIP-1α is the most closely related chemokine to MIP-4, but CCR1 and CCR5 (receptors for MIP-1α) do not bind MIP-4.[1] *In vitro*, MIP-4 is particularly chemotactic for naive T-lymphocytes, Th2 cells, B cells, and immature dendritic cells.[1,2] Despite MIP-4's absence in rodents, it is functionally active in humans as a T-lymphocyte chemoattractant.[3]

Research implicates MIP-4 involvement in tumor malignancy and various inflammatory and allergic pulmonary, skin, and joint diseases.[4] In addition to its chemotactic function, MIP-4 is able to induce production of adaptive regulatory T cells from $CD4^+CD25^-$ T cells.[2] However, this phenomenon is only present in individuals with non-allergic asthma. Taken in conjunction with elevated MIP-4 levels in allergic diseases (asthma and atopic dermatitis), this suggests MIP-4 desensitization or decreased feedback regulation.[2] In chronic obstructive pulmonary disease, an elevated level of MIP-4 coincides with clinical outcome and can serve as a potential biomarker.[5] MIP-4 is also expressed in abundance in tumor-associated macrophages found in breast tissue and is associated with increased breast cancer metastasis.[6] MIP-4 is thought to cause increased ECM adherence of cancerous cells to fibronectin in the stroma allowing subsequent invasion.[6]

The assay is available on 96-well, 4-spot plates. Representative data from the assay are presented below.

Catalog Numbers

Human MIP-4 Kit	
Kit Size	Catalog #
1 plate	K151RLD-1
5 plates	K151RLD-2
25 plates	K151RLD-4

Ordering Information

MSD Customer Service
Phone: 1-240-314-2795
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www.mesoscale.com/support

Company Address

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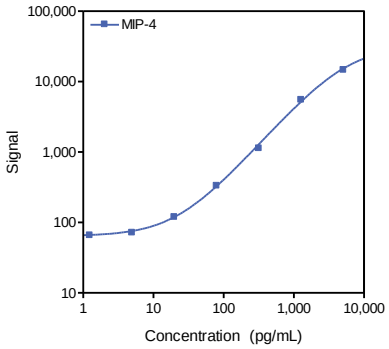
Assay Sensitivity

The following standard curve illustrates the dynamic range of the Human MIP-4 assay.



	MIP-4
Average LLOD (pg/mL)	9.06

The lower limit of detection (LLOD) is a calculated concentration based on a signal 2.5 standard deviations above the background (zero calibrator blank).

Specificity

To assess specificity of the MIP-4 assay, the kit was tested with the following recombinant human proteins: fractalkine, 35,000 pg/mL; I-TAC, 1,500 pg/mL; MCP-2, 250 pg/mL; MIP-3β, 275 pg/mL; and MIP-5, 1,200 pg/mL. Less than 0.1% non-specific binding was observed with each protein.

MSD Advantage

- **Multiplexing:** Multiple analytes can be measured in one well using typical sample volumes of 25 µL or less without compromising speed or performance
- **Large dynamic range**: Linear range of up to five logs enables the measurement of native levels of biomarkers in normal and diseased samples without multiple dilutions
- **Minimal background:** The stimulation mechanism (electricity) is decoupled from the response (light signal), minimizing matrix interference
- **Simple protocols:** Only labels bound near the electrode surface are excited, enabling assays with fewer washes
- **Flexibility:** Labels are stable, non-radioactive, and conveniently conjugated to biological molecules
- **High sensitivity and precision:** Multiple rounds of label excitation and emission enhance light levels and improve sensitivity

For a complete list of products, please visit our website at www.mesoscale.com.

References

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2. Chang Y, et al. The chemokine CCL18 generates adaptive regulatory T cells from memory $CD4^+$ T cells of healthy but not allergic subjects. FASEB J. 2010 Dec;24(12):5063-72.
3. Luzina IG; Atamas, SP. CCR6 is not necessary for functional effects of human CCL18 in a mouse model. Fibrogenesis Tissue Repair. 2012 Jan 18;5(1):2.
4. Schutyser E, et al. Involvement of CC chemokine ligand 18 (CCL18) in normal and pathological processes. J Leukoc Biol. 2005 Jul;78(1):14-26.
5. Sin DD, et al. Serum PARC/CCL-18 concentrations and health outcomes in chronic obstructive pulmonary disease. Am J Respir Crit Care Med. 2011 May 1;183(9):1187-92.
6. Chen J, et al. CCL18 from tumor-associated macrophages promotes breast cancer metastasis via PITPNM3. Cancer Cell. 2011 Apr 12;19(4):541-55.