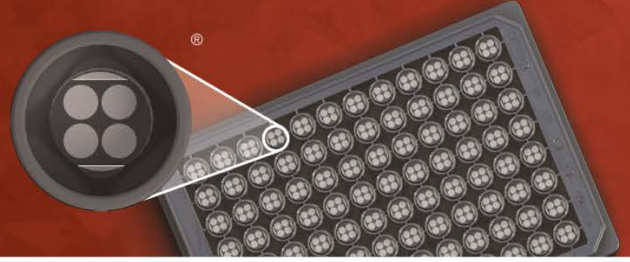
MSD® Human MIP-5 Kit

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

Catalog Numbers

Human MIP-5 Kit	
Kit Size	**Catalog #**
1 plate	K151RMD-1
5 plates	K151RMD-2
25 plates	K151RMD-4

Ordering Information

MSD Customer Service
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Company Address

MESO SCALE DISCOVERY®
A division of
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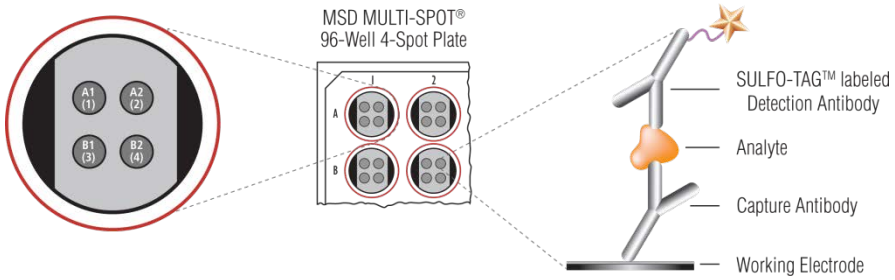
Rockville, MD 20850 USA

www.mesoscale.com®

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

1. MIP-5
2. *BSA blocked*
3. *BSA blocked*
4. *BSA blocked*



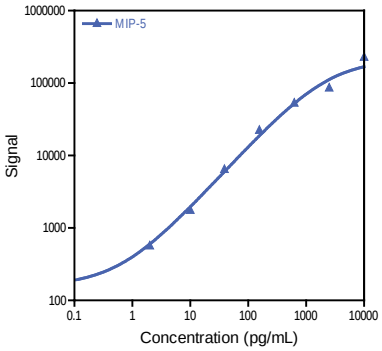
Macrophage inflammatory protein 5 (MIP-5) (CCL15/NCC3/SCYA15) is a C-C chemokine attractant for neutrophils, monocytes, and lymphocytes.[1] MIP-5 is highly expressed in the liver, small intestine, and colon;[1,2] expressed to a lesser degree in the lungs;[2,3] and secreted by T and B lymphocytes, NK cells, monocytes, and monocyte-derived dendritic cells.[2] It primarily acts through CCR1, but MIP-5 can also bind CCR3.[1,2]

MIP-5 is implicated in asthma[2] and sarcoidosis,[3] where increased expression is thought to be linked to disease progression and pathogenesis.[2,3] MIP-5 also shows promise as a potential blood biomarker for Alzheimer's disease in lieu of cerebrospinal fluid biomarkers, showing decreased monocyte levels and a corresponding increased plasma concentration in diseased and early symptom patients.[4] While the exact mechanism of action is unknown, research suggests abnormal cytokine and chemokine levels lead to improper and/or impaired regulation of immune cells, resulting in neuroinflammatory processes.[4] MIP-5 is also shown to be involved in atherosclerosis, as its presence stimulates the secretion of matrix metalloprotein-9, which is associated with atherosclerotic plaque destabilization and rupture.[5]

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

Assay Sensitivity

The following standard curve illustrates the dynamic range of the Human MIP-5 assay.



	MIP-5
Average LLOD (pg/mL)	0.20

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-5 assay, the kit was tested with the following recombinant human proteins: fractalkine, 35 000 pg/mL; I-TAC, 1500 pg/mL; MCP-2, 250 pg/mL; MIP-3β, 275 pg/mL; and MIP-4, 100 pg/mL. Less than 0.1% non-specific binding was observed with each protein.

Dilution Linearity

Freshly collected human blood was stimulated with LPS and co-stimulated with peptidoglycan and zymosan for two different lengths of time. The citrate plasma was then collected, and 4 plasma samples were used to assess the linearity of the Human MIP-5 assay. The 4 samples were diluted 4-fold, 8-fold, and 16-fold before testing. Percent recovery at each dilution was calculated by dividing the calculated concentration (dilution adjusted) by the expected concentration, i.e., the dilution-adjusted concentration of the previous dilution. The average percent recovery shown below is based on samples within the quantitative range of the assay.

% Recovery=measured/expected∗100

		MIP-5	
Sample Type	Fold Dilution	Average % Recovery	% Recovery Range
Citrate Plasma (N=4)	4	95	78–100
	8	92	80–139
	16	130	137–145

Spike Recovery

Normal human plasma samples were spiked with human MIP-5 calibrator at multiple levels throughout the range of the assay. The samples were then diluted 2-fold and tested for recovery. The average percent recovery shown below is based on samples within the quantitative range of the assay. % Recovery=measured/expected∗100

	MIP-5		
Sample Type	Spike Conc. (pg/mL)	Average %Recovery	% Recovery Range
Plasma (N=3)	990–1280	100	99–101
	460–490	88	83–92
	160–140	100	93–108

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

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

References

1. Richter R, et al. Quantum proteolytic activation of chemokine CCL15 by neutrophil granulocytes modulates mononuclear cell adhesiveness. J Immunol. 2005 Aug 1;175(3):1599-608.
2. Joubert P, et al. Expression and regulation of CCL15 by human airway smooth muscle cells. Clin Exp Allergy. 2011 Jan;42(1):85-94.
3. Kwon, SH, et al. Chemokine Lkn-1/CCL15 enhances matrix metalloproteinase-9 release from human macrophages and macrophage-derived foam cells. Nutr Res Pract. 2008;2(2);134-7.
4. Arakelyan A, et al. Protein levels of CC chemokine ligand (CCL)15, CCL16 and macrophage stimulating protein in patients with sarcoidosis. Clin Exp Immunol. 2009 Mar;155(3):457-65.
5. Hochstrasser T, et al. Two blood monocytic biomarkers (CCL15 and p21) combined with the mini-mental state examination discriminate Alzheimer's disease patients from healthy subjects. Dement Geriatr Cogn Dis Extra. 2011 Jan;1(1):297-309.