

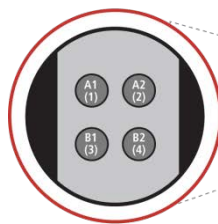
MSD[®] Human MIF Kit

For quantitative determination in human serum, plasma, and tissue culture supernatants

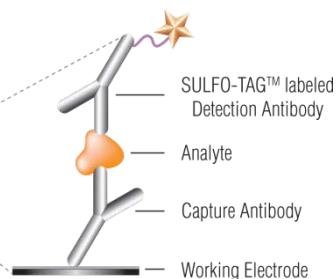
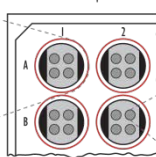


Alzheimer's Disease
BioProcess
Cardiac
Cell Signaling
Clinical Immunology
Cytokines
Growth Factors
Hypoxia
Immunogenicity
Inflammation
Metabolic
Oncology
Toxicology
Vascular

1. **MIF**
2. *BSA blocked*
3. *BSA blocked*
4. *BSA blocked*



MSD MULTI-SPOT[®]
96-Well 4-Spot Plate



Macrophage Migration Inhibitory Factor (MIF) is a 12 kDa, pleiotropic protein, involved in both innate and adaptive immune responses. The protein was one of the first cytokines discovered through its role in delayed type sensitivity and regulation of macrophage action against bacterial pathogens.¹ MIF is ubiquitously expressed in tissues such as the anterior pituitary, gut and kidney epithelia, skin, and in neuronal and non-neuronal cells of the brain. MIF has been shown to be a key regulator of acute and chronic inflammatory conditions including rheumatoid arthritis (RA), atherosclerosis, and systemic lupus erythematosus (SLE).^{2,3}

MIF displays a unique regulatory role in its ability to sustain inflammatory responses despite the presence of endogenous or exogenous glucocorticoids.^{1,3} Once released, it "overrides" or counter-regulates the immunosuppressive effects of steroids on immune cell activation and cytokine production. This property makes MIF an attractive therapeutic target for autoimmune and inflammatory diseases.^{2,4}

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

Catalog Numbers

Human MIF Kit	
Kit Size	Catalog #
1 plate	K151LVD-1
5 plates	K151LVD-2
25 plates	K151LVD-4

Ordering Information

MSD Customer Service
Phone: 1-301-947-2085
Fax: 1-301-990-2776
Email: CustomerService@mesoscale.com

Scientific Support

Phone: 1-301-947-2025
Email: ScientificSupport@mesoscale.com

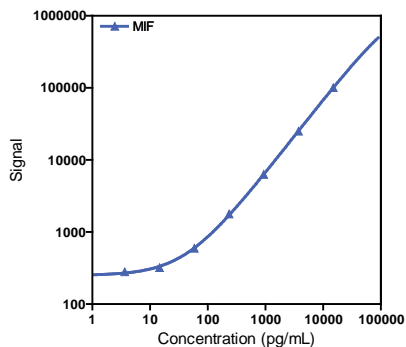
Company Address

MESO SCALE DISCOVERY[®]
A division of
Meso Scale Diagnostics, LLC.
1601 Research Boulevard
Rockville, MD 20850-3173 USA

www.mesoscale.com[®]

Assay Sensitivity

The following standard curve illustrates the dynamic range of the Human MIF assay.



Average LLOD (pg/mL)	MIF
	2.4

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

MSD Advantage

- **Multiplexing:** Multiple analytes can be measured in one well using typical sample volumes of 25 μ L 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.

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

MSD Cytokine Assays

References

1. Calandra T & Roger T. Macrophage migration inhibitory factor: a regulator of innate immunity. *Nature reviews Immunology*. 2003 Oct;3:791-800.
2. Santos LL, Morand EF. Macrophage migration inhibitory factor: a key cytokine in RA, SLE and atherosclerosis. *Clin Chim Acta*. 2009 Jan;399(1-2):1-7.
3. Flaster H, Bernhagen J, Calandra T, Bucala R. The macrophage migration inhibitory factor-glucocorticoid dyad: regulation of inflammation and immunity. *Mol Endocrinol*. 2007 Jun;21(6):1267-80.
4. Kleemann R, Bucala R. Macrophage migration inhibitory factor: critical role in obesity, insulin resistance, and associated comorbidities. *Mediators Inflamm*. 2010 2010:610479.

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