

MIF Protein, Human, Recombinant (His)

General Information

Synonyms:	macrophage migration inhibitory factor (glycosylation-inhibiting factor);MMIF;GLIF;GIF
Protein Construction:	A DNA sequence encoding the human MIF (P14174) (Pro 2-Ala 115) was fused with a polyhistidine tag at the C-terminus and a signal peptide at the N-terminus. Predicted N terminal: Pro 2
Species:	Human
Expression Host:	HEK293 Cells
Accession:	P14174
Molecular Weight:	13.8 kDa (predicted); 19 kDa (reducing condition, due to glycosylation)

QC Testing

Biological Activity:	Activity testing is in progress. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.
Purity:	> 92 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/µg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 µm filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:
Reconstituted with sterile deionized water to 0.25 mg/mL. Reconstitution conditions may vary depending on the lot.

Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

Macrophage migration inhibitory factor (MIF) is an immunoregulatory cytokine, the effect of which on arresting random immune cell movement was recognized several decades ago. Despite its historic name, MIF also has a direct chemokine-like function and promotes cell recruitment. MIF is a ubiquitously expressed protein that plays a crucial role in many inflammatory and autoimmune disorders. Increasing evidence suggests that MIF also controls

metabolic and inflammatory processes underlying the development of metabolic pathologies associated with obesity. Further research has shown that MIF plays a particularly critical part in cell cycle regulation and therefore in tumorigenesis as well. The significance of the role of MIF in a variety of both solid and hematologic tumors has been established. More recently, interest has increased in the role of MIF in the development of the central nervous system (CNS) tumors, in which it appears to influence cell cycle control. MIF contributes to malignant disease progression on several different levels. Both circulating and intracellular MIF protein levels are elevated in cancer patients and MIF expression reportedly correlates with stage, metastatic spread, and disease-free survival. Blockade of MIF bioactivity successfully inhibited tumor cell growth in vivo and in vitro. MIF plays important role in the pathogenesis of gastrointestinal, hepatic, and pancreatic disorders.

Reference

- Ohkawara T, et al. (2005) Pathophysiological roles of macrophage migration inhibitory factor in gastrointestinal, hepatic, and pancreatic disorders. *J Gastroenterol.* 40(2): 117-22.
- Bach JP, et al. (2009) The role of macrophage inhibitory factor in tumorigenesis and central nervous system tumors. *Cancer.* 115(10): 2031-40.
- Rendon BE, et al. (2009) Mechanisms of macrophage migration inhibitory factor (MIF)-dependent tumor microenvironmental adaptation. *Exp Mol Pathol.* 86(3): 180-5.
- Grieb G, et al. (2010) Macrophage migration inhibitory factor (MIF): a promising biomarker. *Drug News Perspect.* 23(4): 257-64.

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