

GM-CSF R alpha Protein, Mouse (HEK293, His)

Cat. No.:	HY-P77909
Synonyms:	GM-CSF-R-alpha; GMCSFR-alpha; GMR-alpha; CSF2R; CSF2RY; CSF2RA; CDw116; CD116; CSF2RAX; CSF2RAY; CSF2RX; GMCSFR; GMR; SMDP4
Species:	Mouse
Source:	HEK293
Accession:	Q00941 (L30-P327)
Gene ID:	12982
Molecular Weight:	50-65 kDa

PROPERTIES

Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.22 μ m filtered solution of PBS, pH 7.4. Normally 5% trehalose is added as protectant before lyophilization.
Endotoxin Level	<1 EU/ μ g, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 μ g/mL in ddH ₂ O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	GM-CSF R alpha is expressed on myeloid cells and on some non-hemopoietic cells, such as endothelial cells, not on T cells ^[2] . The amino acid sequence of human GM-CSF R alpha protein has low homology for mouse GM-CSF R alpha protein. GM-CSF receptor (GM-CSFR) consists of two subunits, an α -subunit, which binds the cytokine with low affinity, and a larger β -subunit (beta common; β c), responsible for signaling, forming a ternary receptor complex. Signal transduction in response to the cytokines interleukin (IL)-3 and IL-5 is also mediated by β c; therefore, receptor specificity is due to GM-CSFR α ^[1] . After binding GM-CSF to its receptor, Janus-kinase-2 (JAK-2) is recruited to the cytoplasmic domain of the β chain, and activation of JAK-2 occurs, which subsequently induces STAT-5 phosphorylation. This signaling pathway induces migration of STAT-5 dimers to the nucleus and promotes the transcription of various genes such as pim-1 and CIS to induce cell differentiation ^[2] GM-CSFR α -subunit significantly increases positive synovial macrophages in the RA synovium. GM-CSFR α monoclonal antibody suppresses disease activity in the murine collagen-induced arthritis model ^[3] .
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REFERENCES

[1]. Hansen G, et al. The structure of the GM-CSF receptor complex reveals a distinct mode of cytokine receptor activation. Cell. 2008 Aug 8;134(3):496-507.

[2]. Lotfi N, et al. Roles of GM-CSF in the Pathogenesis of Autoimmune Diseases: An Update. *Front Immunol.* 2019 Jun 4;10:1265.

[3]. Cook AD, et al. Granulocyte macrophage colony-stimulating factor receptor α expression and its targeting in antigen-induced arthritis and inflammation. *Arthritis Res Ther.* 2016 Dec 1;18(1):287.

Caution: Product has not been fully validated for medical applications. For research use only.

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