

GM-CSF R alpha Protein, Human (Biotinylated, HEK293, His-Avi)

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| Cat. No.: | HY-P78110 |
| Synonyms: | GM-CSF-R-alpha; GMCSFR-alpha; GMR-alpha; CSF2R; CSF2RY; CSF2RA; CDw116; CD116; CSF2RAX; CSF2RAY; CSF2RX; GMCSFR; GMR; SMDP4 |
| Species: | Human |
| Source: | HEK293 |
| Accession: | P15509 (E23-G320) |
| Gene ID: | 1438 |
| Molecular Weight: | 55-70 kDa |

PROPERTIES

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| Biological Activity | Immobilized Anti-GM-CSF R alpha Antibody, hFc Tag at 1 µg/mL (100 µl/well) on the plate. Dose response curve for Biotinylated Human GM-CSF R alpha, His Tag with the EC ₅₀ of ≤12 ng/mL determined by ELISA. |
| Appearance | Lyophilized powder. |
| Formulation | Lyophilized from a 0.22 µm filtered solution of PBS, pH 7.4. Normally 5% trehalose is added as protectant before lyophilization. |
| Endotoxin Level | <1 EU/µg, determined by LAL method. |
| Reconstitution | It is not recommended to reconstitute to a concentration less than 100 µg/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].

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

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