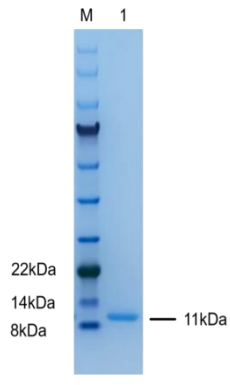
Human Granulocyte-Macrophage Colony-Stimulating Factor (GM-CSF) Protein, Recombinant

1. For Sale

Product Name	Catalog #	Size
Human Granulocyte-Macrophage Colony-Stimulating Factor (GM-CSF) Protein, Recombinant	P01G0016P	10ug
		50ug
		500ug
		1mg

2. Product Description

Other Names	CSF2
Protein & NCBI Number	M11220, P04141
Host	E.coli
Express Region	Ala18-Glu144
Protein Sequence	APARSPSPSTQPWEHVNAIQEARRLLNLSRDTAAEMNETVEVISEMFDLQEPTC LQTRLELYKQGLRGSLTKLKGPLTMMASHYKQHCPPTPETSCATQIITFESFKE NLKDFLLVIPFDCWEPVQE
Molecular Weight	The protein consists of 127 amino acids (including the fusion tag), with a predicted molecular weight of 14.5kDa. Due to glycosylation, and the actual molecular weight is 11kDa.
Fusion Tag	None
Purity	≥95% SDS-PAGE
Physical Property	Liquid
components	0.01M PBS+20% glycerol, sterile solution.
Storage & Stability	After aliquoting, the stability of the samples can be maintained for up to 6 months at -20°C to -80°C, avoiding repeated freeze-thaw cycles.
Applications	Antibody preparation, immunoassay (ELISA, WB), subcellular localization and interaction protein identification, etc.
Lead Time	5 to 10 business days; 2 to 3 days for stock products
Figure. SDS-PAGE	 Bis-Tris (MOPS) SDS-PAGE

3. Storage and Transportation

Transport at 2-8℃, product is stable for up to twelve months from date of receipt under sterile conditions at -20℃ to -80℃.

4. Notes

This product is for research use only. Please wear laboratory attire and disposable gloves when handling.

5. Background

Granulocyte-Macrophage Colony-Stimulating Factor (GM-CSF), also known as Colony-Stimulating Factor 2 (CSF2), is a monomeric glycoprotein. Unlike Granulocyte Colony-Stimulating Factor (G-CSF), which specifically promotes the proliferation and maturation of neutrophils, GM-CSF affects a broader range of cell types, particularly macrophages and eosinophils.

High levels of GM-CSF have been detected in the joints of patients with rheumatoid arthritis, and targeting GM-CSF as a biological target can reduce inflammation or tissue damage. In critically ill patients, GM-CSF has been trialed as an immunosuppressive therapy, showing potential in restoring the function of monocytes and neutrophils.

The functions of GM-CSF include: Hematopoiesis and differentiation of bone marrow lineage cells; Development and maintenance of alveolar macrophages; Recruitment and differentiation of monocyte-derived dendritic cells (DCs), including the production of IL-23 and polarization of TH17 T cells; Maturation and antigen presentation by conventional DCs, such as CD103-expressing DCs in the skin and small intestine; Polarization of M1 macrophages, including the production of pro-inflammatory cytokines, phagocytosis, and antigen presentation; Priming and activation of neutrophils, including processes such as phagocytosis, oxidative bursts, and nitric oxide generation.

6. References

1) Wei, F., Wang, H., Zhang, J. et al. Pharmacokinetics of combined gene therapy expressing constitutive human GM-CSF and hyperthermia-regulated human IL-12. J Exp Clin Cancer Res 32, 5 (2013).Ngo VL et al. Intestinal microbiota programming of alveolar macrophages influences severity of respiratory viral infection. Cell Host Microbe. 2024 Mar 13;32(3):335-348.

2) Wicks, I., Roberts, A. Targeting GM-CSF in inflammatory diseases. Nat Rev Rheumatol 12, 37–48 (2016).

3) Jiang N, Tian Z, Tang J, Ou R, Xu Y. Granulocyte Macrophage-Colony Stimulating Factor (GM-CSF) Downregulates the Expression of Protumor Factors Cyclooxygenase-2 and Inducible Nitric Oxide Synthase in a GM-CSF Receptor-Independent Manner in Cervical Cancer Cells. Mediators Inflamm. 2015;2015:601604.

4) Besana, C. et al. (1994). Intensive chemotherapy with recombinant-human granulocyte-macrophage colony stimulating factor (r-hu-gm-csf) for small cell lung cancer (sclc): a pilot study. In: Banzet, P., Holland, J.F., Khayat, D., Weil, M. (eds) Cancer Treatment An Update. Springer, Paris.