

GM-CSF Protein, Human (CHO)

Cat. No.:	HY-P7016
Synonyms:	rHuGM-CSF; CSF-2; MGI-1GM; Pluripoietin-alpha; Molgramostin; Sargramostim
Species:	Human
Source:	CHO
Accession:	P04141 (A18-E144)
Gene ID:	1437
Molecular Weight:	22-28 kDa

PROPERTIES

AA Sequence	<p>A P A R S P S P S T Q P W E H V N A I Q E A R R L L N L S R D T A A E M N E T V</p> <p>E V I S E M F D L Q E P T C L Q T R L E L Y K Q G L R G S L T K L K G P L T M M</p> <p>A S H Y K Q H C P P T P E T S C A T Q I I T F E S F K E N L K D F L L V I P F D</p> <p>C W E P V Q E</p>
Biological Activity	The ED ₅₀ is <0.2 ng/mL as measured by TF-1 cells, corresponding to a specific activity of >5 × 10 ⁶ units/mg.
Appearance	Lyophilized powder.
Formulation	Lyophilized after extensive dialysis against PBS.
Endotoxin Level	<0.2 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 or PBS.
Storage & Stability	Stored at -20°C. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer. 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	<p>Granulocyte-macrophage colony-stimulating factor (GM-CSF) is produced by a variety of cell types including T cells, macrophages, endothelial cells and fibroblasts upon receiving immune stimuli. It is an important hematopoietic growth factor and immune modulator. GM-CSF also has profound effects on the functional activities of various circulating leukocytes. GM-CSF stimulates multipotent progenitor cells depending on its concentration, the proliferation of macrophage progenitors at the lowest doses, followed by granulocyte, erythroid, eosinophil, megakaryocyte and multipotent progenitors. It also stimulates the differentiation of myeloid leukemic cells and controls eosinophil function in some instances^{[1][2]}. GM-CSF also enhances the functionality of mature cells, such as neutrophils. In neutrophils, GM-CSF</p>
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potentiates degranulation, the release of oxygen and nitrogen radical ions, phagocytosis, and inhibits apoptosis^[3]. GM-CSF inhibition in some animal models of autoimmune diseases showed significant beneficial effects^[4]. GM-CSF also has many pro-inflammatory functions and recent data implicates GM-CSF as a key factor in Th17 driven autoimmune inflammatory conditions^[5].

REFERENCES

- [1]. Shi Y, et al. Granulocyte-macrophage colony-stimulating factor (GM-CSF) and T-cell responses: what we do and don't know. *Cell Res.* 2006 Feb;16(2):126-33.
- [2]. Gasson JC, et al. Human granulocyte-macrophage colony-stimulating factor (GM-CSF): regulation of expression. *Prog Clin Biol Res.* 1990;338:27-41.
- [3]. Gomez-Cambronero J, et al. Granulocyte-macrophage colony-stimulating factor is a chemoattractant cytokine for human neutrophils: involvement of the ribosomal p70 S6 kinase signaling pathway. *J Immunol.* 2003 Dec 15;171(12):6846-55.
- [4]. Shiomi A, et al. GM-CSF as a therapeutic target in autoimmune diseases. *Inflamm Regen.* 2016 Jul 5;36:8.
- [5]. van Nieuwenhuijze A, et al. GM-CSF as a therapeutic target in inflammatory diseases. *Mol Immunol.* 2013 Dec;56(4):675-82.
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Caution: Product has not been fully validated for medical applications. For research use only.

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