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## Product Data Sheet

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Product Name: GM CSF Human

Cat. No.: GP20353

Batch No.: 1

**Product Data**

Purity	Greater than 98.0% as determined by:1. Analysis by RP-HPLC.2. Analysis by SDS-PAGE.	Source	Escherichia Coli.
Physical Appearance	Sterile Filtered White lyophilized (freeze-dried) powder.	Shipping Condition	Shipped at Room temp.
Synonyms	CSF-2; MGI-1GM; GM-CSF; Pluripoietin-alpha; MGC131935; MGC138897.		
Amino Acid Sequence	The sequence of the first five N-terminal amino acids was determined and was found to be Ala-Pro-Ala-Arg-Ser.N-terminal methionine has been completely removed enzymatically.		
Solubility	It is recommended to reconstitute the lyophilized Granulocyte Macrophage Colony Stimulating Factor in sterile 18MΩ-cm H2O not less than 100µg/ml, which can then be further diluted to other aqueous solutions.		
Formulation	GM-CSF was lyophilized after extensive dialysis against 2mM sodium phosphate buffer pH= 7.46 <sup>±</sup> 0.1.		

**Introduction**

Granulocyte Macrophage Colony Stimulating Factor (GM-CSF) was first characterized as a growth factor that supports the in-vitro colony formation of granulocytes-macrophages progenitor cells. It is a pleiotropic cytokine and a member of a family of endogenous cytokines of the hematopoietic system. GM-CSF is produced as a response to immune or inflammatory stimuli by activated cells of the hematopoietic system such as T cells, B cells, macrophages, mast cells and also fibroblasts and alveolar epithelial cells. It plays an important role in regulating the proliferation, differentiation, survival and activation of hematopoietic cells such as granulocytes and monocytes, neutrophils, basophils and eosinophils, erythroid cells, megakaryocytes and T cells. Human and mouse GM-

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

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CSF have about 56% homology and are species specific. Human GM-CSF is not active on mouse cells and vice versa. It is active on canine and feline cells. GMCSF is 144 amino acids, 22kDa glycoprotein. It is composed of four bundles alpha helices. Its receptor is heterodimers with a ligand-specific alpha subunit and a beta subunit that is shared with the interleukin IL-3 and IL-5 receptors. This unusual form of receptor assembly likely applies also to IL-3 and IL-5 receptors. Cross-linking the two receptor subunits is required for receptor activation and signaling. GMCSF has been shown to be involved in maturation, mobilization and antigen presentation of myeloid dendritic cells (DCs) in-vivo or ex-vivo. This function promotes Th1 immune responses, cytotoxicity, anti-angiogenesis as well as allergic inflammation, and the development of autoimmunity. Therefore GMCSF can be used in immunotherapy for the treatment of immune suppressed and immune-compromised patients as well as in veterinary medicine for the same purpose. GM-CSF is also important in regulation of embryo development and pregnancy and specifically in embryo implantation and subsequent development.

### Biological Activity

The ED50 as determined by the dose-dependant stimulation of the proliferation of human TF-1 cells (human erythroleukemic indicator cell line) is < 0.1 ng/ml, corresponding to a Specific Activity of 11,100,000 IU/mg.

### Stability

Lyophilized Granulocyte Macrophage Colony Stimulating Factor although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution GMCSF should be stored at 4°C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

### Background

Granulocyte Macrophage Colony Stimulating Factor Human Recombinant produced in E.Coli is a single, non-glycosylated, polypeptide chain containing 127 amino acids and having a molecular mass of 14477 Dalton. GM-CSF is purified by proprietary chromatographic techniques.

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