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Product Information

Granulocyte-Macrophage Colony Stimulating Factor, human
recombinant, expressed in *E. coli*

Catalog Number **G5035**, carrier free
Catalog Number **SRP3050**, animal component free
Storage Temperature –20 °C

Synonyms: GM-CSF, CSF-2, MGI-1GM, pluripoietin-α

Product Description

Four distinct colony-stimulating factors (CSFs) that promote survival, proliferation, and differentiation of bone marrow precursor cells are well characterized: granulocyte-macrophage CSF (GM-CSF), granulocyte CSF (G-CSF), macrophage CSF (M-CSF), and interleukin-3 (IL-3, Multi-CSF).[1,2] Both GM-CSF and IL-3 are multipotential growth factors, stimulating proliferation of progenitor cells from more than one hematopoietic lineage. GM-CSF induces myeloid progenitor cells from bone marrow to form colonies containing macrophages and granulocytes in a semisolid medium.

GM-CSF is a hematopoietic growth factor that stimulates the development of neutrophils and macrophages. GM-CSF also stimulates the proliferation and development of early erythroid, megakaryocytic, and eosinophilic progenitor cells. GM-CSF is produced by endothelial cells, monocytes, fibroblasts, and T-end-cells. Although human and mouse GM-CSF share 54% amino acid sequence homology, their biological actions are species-specific and exhibit no cross-species reactivity.[3]

This recombinant, Human Granulocyte-Macrophage Colony Stimulating Factor (GM-CSF) product is a 14.6 kDa globular protein consisting of 128 amino acids, containing two intramolecular disulfide bonds and two potential N-linked glycosylation sites. It is lyophilized from a 10 mM sodium citrate solution, pH 3.5. The protein is sterile filtered through a 0.2 μm filter.

The biological activity of recombinant human GM-CSF is measured by the dose-dependent stimulation of the proliferation of human TF-1 cells.[4, 5] The EC_{50} is defined as the effective concentration of growth factor that elicits a 50% increase in cell growth in a cell based bioassay.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

It is advisable to centrifuge the vial prior to reconstitution. Reconstitute the contents of the vial using water to a concentration of ≥0.1 mg/ml. This solution can then be diluted into other aqueous buffers and stored frozen in working aliquots.

Storage/Stability

Prior to reconstitution, store the lyophilized protein at –20 °C. It is stable for up to a few weeks at room temperature, but is best stored at –20 °C.

For extended storage, after reconstitution, store in working aliquots at –20 °C. Avoid repeated freeze-thaw cycles.

References

1. Mazur, E.M., and Cohen, J.L., Basic concepts of hematopoiesis and the hematopoietic growth factors. Clin. Pharmacol. Ther., **46**, 250-256 (1989).
2. Morstyn, G., and Burgess, A.W., Hemopoietic growth factors: a review. Cancer Res., **48**, 5624-5637 (1988).
3. Metcalf, D., The molecular biology and functions of the granulocyte-macrophage colony-stimulating factors. Blood, **67**, 257-267 (1986).
4. Kitamura, T. et al., Establishment and characterization of a unique human cell line that proliferates dependently on GM-CSF, IL-3, or erythropoietin. J. Cell Physiol., **140**, 323-334 (1989).
5. Kuwaki, T. et al., Characterization of human interleukin-3 receptors on a multi-factor-dependent cell line. Biochem. Biophys. Res. Commun., **161**, 16-22 (1989).

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