

DESCRIPTION

Source *E. coli*-derived human GM-CSF protein
Ala18-Glu144
Accession # P04141.1

N-terminal Sequence Analysis Ala18

Predicted Molecular Mass 14 kDa

SPECIFICATIONS

Activity Measured in a cell proliferation assay using TF-1 human erythroleukemic cells. Kitamura, T. *et al.* (1989) *J. Cell Physiol.* **140**:323. The ED₅₀ for this effect is 6-30 pg/mL.

Endotoxin Level <1.0 EU per 1 µg of the protein by the LAL method.

Purity >97%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.

Formulation Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute at 100 µg/mL in PBS.

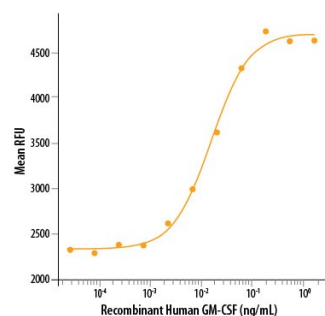
Shipping The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

Stability & Storage Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

- 12 months from date of receipt, -20 to -70 °C as supplied.
- 1 month, 2 to 8 °C under sterile conditions after reconstitution.
- 3 months, -20 to -70 °C under sterile conditions after reconstitution.

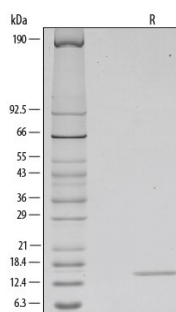
DATA

Bioactivity



Recombinant Human GM-CSF Protein Bioactivity Recombinant Human GM-CSF (Catalog # 215-IL/CF) stimulates cell proliferation of the TF-1 human erythroleukemic cell line. The ED₅₀ for this effect is 6-30 pg/mL.

SDS-PAGE



Recombinant Human GM-CSF Protein SDS-PAGE 1 µg/lane of Recombinant Human GM-CSF was resolved with SDS-PAGE under reducing (R) conditions and visualized by silver staining, showing a single band at 14 kDa.

BACKGROUND

GM-CSF was initially characterized as a factor that can support the *in vitro* colony formation of granulocyte-macrophage progenitors. It is also a growth factor for erythroid, megakaryocyte, and eosinophil progenitors. GM-CSF is produced by a number of different cell types (including T cells, B cells, macrophages, mast cells, endothelial cells, fibroblasts, and adipocytes) in response to cytokine or inflammatory stimuli. On mature hematopoietic cells, GM-CSF is a survival factor for and activates the effector functions of granulocytes, monocytes/macrophages, and eosinophils (1, 2). GM-CSF promotes a Th1 biased immune response, angiogenesis, allergic inflammation, and the development of autoimmunity (3-5). It shows clinical effectiveness in ameliorating chemotherapy-induced neutropenia, and GM-CSF transfected tumor cells are utilized as cancer vaccines (6, 7). The 22 kDa glycosylated GM-CSF, similar to IL-3 and IL-5, is a cytokine with a core of four bundled α -helices (8-12). Mature human GM-CSF shares 63%-70% amino acid sequence identity with canine, feline, porcine, and rat GM-CSF and 54% with mouse GM-CSF. GM-CSF exerts its biological effects through a heterodimeric receptor complex composed of GM-CSF R α /CD116 and the signal transducing common β chain (CD131) which is also a component of the high-affinity receptors for IL-3 and IL-5 (13, 14). In addition, GM-CSF binds a naturally occurring soluble form of GM-CSF R α (15). Human GM-CSF is active on canine and feline cells but not on murine cells (16-18).

References:

1. Martinez-Moczygemba, M. and D.P. Huston (2003) *J. Allergy Clin. Immunol.* **112**:653.
2. Barreda, D.R. *et al.* (2004) *Dev. Comp. Immunol.* **28**:509.
3. Eksioglu, E.A. *et al.* (2007) *Exp. Hematol.* **35**:1163.
4. Cao, Y. (2007) *J. Clin. Invest.* **117**:2362.
5. Fleetwood, A.J. *et al.* (2005) *Crit. Rev. Immunol.* **25**:405.
6. Heuser, M. *et al.* (2007) *Semin. Hematol.* **44**:148.
7. Hege, K.M. *et al.* (2006) *Int. Rev. Immunol.* **25**:321.
8. Kaushansky, K. *et al.* (1992) *Biochemistry* **31**:1881.
9. Diederichs, K. *et al.* (1991) *Science* **254**:1779.
10. Cantrell, M.A. *et al.* (1985) *Proc. Natl. Acad. Sci.* **82**:6250.
11. Lee, F. *et al.* (1985) *Proc. Natl. Acad. Sci.* **82**:4360.
12. Wong, G.G. *et al.* (1985) *Science* **228**:810.
13. Onetto-Pothier, N. *et al.* (1990) *Blood* **75**:59.
14. Hayashida, K. *et al.* (1990) *Proc. Natl. Acad. Sci.* **87**:9655.
15. Pelley, J.L. *et al.* (2007) *Exp. Hematol.* **35**:1483.
16. Hogge, G.S. *et al.* (1990) *Cancer Gene Ther.* **6**:26.
17. Sprague, W.S. *et al.* (2005) *J. Comp. Pathol.* **133**:136.
18. Shanafelt, A.B. *et al.* (1991) *J. Biol. Chem.* **266**:13804.