

DESCRIPTION

Source *E. coli*-derived
Ala18-Lys141, with an N-terminal Met
Accession # Q14AD9

N-terminal Sequence Analysis Met

Predicted Molecular Mass 14.3 kDa

SPECIFICATIONS

Activity Measured in a cell proliferation assay using DA3 mouse myeloma cells. Ihle, J.N. *et al.* (1984) *Advances in Viral Oncology*. In G. Klein (eds): Raven Press, New York, NY. 4:95.
The ED₅₀ for this effect is typically 5-30 pg/mL.

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

Purity >97%, by SDS-PAGE under reducing conditions and visualized by silver stain.

Formulation Lyophilized from a 0.2 µm filtered solution in PBS with BSA as a carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute at 100 µg/mL in sterile PBS containing at least 0.1% human or bovine serum albumin.

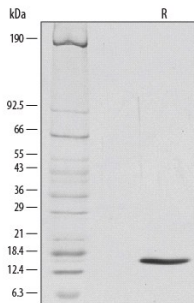
Shipping The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.

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.

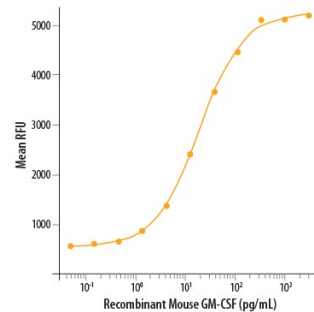
DATA

SDS-PAGE



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

Bioactivity



Recombinant Mouse GM-CSF (Catalog # 415-ML) stimulates cell proliferation of the DA3 mouse myeloma cell line. The ED₅₀ for this effect is typically 5-30 pg/mL.

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 (8-10). Mature mouse GM-CSF shares 49%-54% amino acid sequence identity with canine, feline, human, and porcine GM-CSF and 69% with rat 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 (11, 12). In addition, GM-CSF binds a naturally occurring soluble form of GM-CSF R α (13). The activity of GM-CSF is species specific between human and mouse. Mouse GM-CSF is only weakly active on rat cells, although rat GM-CSF is fully active on mouse cells (14, 15).

References:

1. Martinez-Moczygamba, 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. Gough, N.M. *et al.* (1984) *Nature* **309**:763.
11. Onetto-Pothier, N. *et al.* (1990) *Blood* **75**:59.
12. Hayashida, K. *et al.* (1990) *Proc. Natl. Acad. Sci.* **87**:9655.
13. Pelley, J.L. *et al.* (2007) *Exp. Hematol.* **35**:1483.
14. Oaks, M.K. *et al.* (1995) *J. Interferon Cytokine Res.* **15**:1095.
15. Vandenebeele, P. *et al.* (1990) *Lymphokine Res.* **9**:381.