

**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 ED<sub>50</sub> 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 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.

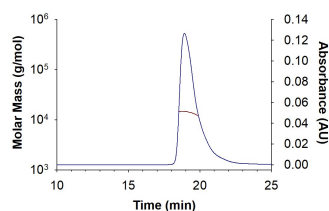
**Shipping** The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

**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**

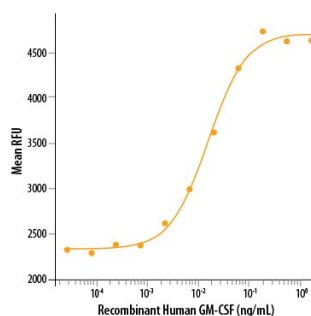
**SEC-MALS**



**Recombinant Human GM-CSF Protein SEC-MALS.** Recombinant Human GM-CSF Protein (Catalog # 215-GM) has a molecular weight (MW) of 14.1 kDa as analyzed by SEC-MALS, suggesting that this protein is a monomer.

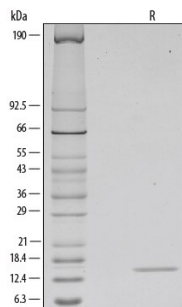
SEC-MALS Data	Result
Retention Time	18.5 - 19.9
MW - Predicted (Monomer)	14.0 kDa
MW - MALS	14.1
Polydispersity	1.003
System Suitability: BSA Monomer 66.4 ± 3.32 kDa	Pass

**Bioactivity**



**Recombinant Human GM-CSF Protein Bioactivity** Recombinant Human GM-CSF (Catalog # 215-IL) stimulates cell proliferation of the TF-1 human erythroleukemic cell line. The ED<sub>50</sub> 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  $\alpha$ -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 $\alpha$ /CD116 and the signal transducing common  $\beta$  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 $\alpha$  (15). Human GM-CSF is active on canine and feline cells but not on murine cells (16-18).

**References:**

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