# Recombinant Human GM-CSF

**Catalog Number:** 215-GM

## DESCRIPTION

**Source**
- *E. coli*-derived
- Ala18-Glu144
- Accession # CAA26822

**N-terminal Sequence Analysis**
- Ala18

**Predicted Molecular Mass**
- 14 kDa

## SPECIFICATIONS

**Activity**
- The ED₅₀ for this effect is 6-30 pg/mL.
- The specific activity of Recombinant Human GM-CSF is approximately 1.5 x 10⁴ IU/µg, which is calibrated against human GM-CSF WHO International Standard (NIBSC code: 88/646).

**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 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

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

**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 Rα/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 Rα (15). Human GM-CSF is active on canine and feline cells but not on murine cells (16-18).

References: