

## Cytokines

### Human Recombinant GM-CSF, ACF

Granulocyte-macrophage colony-stimulating factor, animal component-free



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Catalog # 78140  
78140.1  
78140.2

5 µg  
100 µg  
1000 µg

## Product Description

Granulocyte-macrophage colony-stimulating factor (GM-CSF) promotes the proliferation and differentiation of hematopoietic progenitor cells and the generation of neutrophils, eosinophils, and macrophages. In synergy with other cytokines such as stem cell factor, IL-3, erythropoietin, and thrombopoietin, it also stimulates erythroid and megakaryocyte progenitors (Barreda et al.). GM-CSF is produced by multiple cell types, including stromal cells, Paneth cells, macrophages, dendritic cells (DCs), endothelial cells, smooth muscle cells, fibroblasts, chondrocytes, and Th1 and Th17 T cells (Francisco-Cruz et al.). The receptor for GM-CSF (GM-CSFR) is composed of two subunits: the cytokine-specific  $\alpha$  subunit (GMR $\alpha$ ; CD116) and the common subunit  $\beta$ c (CD131) shared with IL-3 and IL-5 receptors (Broughton et al.). GM-CSFR is expressed on hematopoietic cells, including progenitor cells and immune cells, as well as non-hematopoietic cells. Recombinant human GM-CSF (rhGM-CSF) promotes the production of myeloid cells of the granulocytic (neutrophils, eosinophils and basophils) and monocytic lineages in vivo. It has been tested for mobilization of hematopoietic progenitor cells and for treating chemotherapy-induced neutropenia in patients. GM-CSF is able to stimulate the development of DCs that ingest, process, and present antigens to the immune system (Francisco-Cruz et al.). This product is animal component-free.

## Product Information

**Alternative Names:** Colony-stimulating factor 2, CSF-2, MGI-1GM, Pluripoitin-alpha  
**Accession Number:** P04141  
**Amino Acid Sequence:** MAPARSPSPS TQPWEHVNAI QEARRLLNLS RDTAAEMNET VEISEMFDL QEPTCLQTRL ELYKQGLRGS LTKLKGPLTM MASHYKQHCP PTPETSCATQ IITFESFKEN LKDFLLVIPF DCWEPVQE  
**Predicted Molecular Mass:** 14.6 kDa  
**Species:** Human  
**Cross Reactivity:** Does not show activity on mouse cells  
**Formulation:** Lyophilized from a sterile-filtered aqueous solution containing sodium phosphate, pH 7.5  
**Source:** E. coli

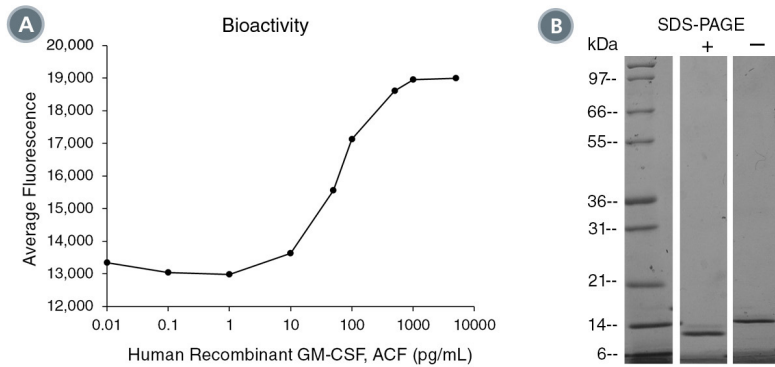
## Specifications

**Activity:** The specific activity is  $\geq 5.0 \times 10^6$  units/mg ( $EC_{50} \leq 200$  pg/mL) as determined by a cell proliferation assay using TF-1 cells.  
**Purity:**  $\geq 95\%$   
**Endotoxin Level:** Measured by kinetic Limulus amebocyte lysate (LAL) analysis and is  $\leq 1$  EU/µg protein.

## Preparation and Storage

**Storage:** Store at -20°C to -80°C.  
**Stability:** Stable as supplied for 12 months from date of receipt.  
**Preparation:** Centrifuge vial before opening. Resuspend the product in sterile water containing 0.1% bovine serum albumin (BSA) to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex. Store at 2 - 8°C for up to 1 month or at -20°C to -80°C for up to 3 months. Avoid repeated freeze-thaw cycles.  
NOTE: If reconstituted product will be used immediately, BSA is not required.

## Data



(A) The biological activity of Human Recombinant GM-CSF, ACF was tested by its ability to promote the proliferation of TF-1 cells. Cell proliferation was measured after 48 hours of culture using a fluorometric assay method. The EC<sub>50</sub> is defined as the effective concentration of the cytokine at which cell proliferation is at 50% of maximum. The EC<sub>50</sub> in the example above is 62 pg/mL.

(B) 1 µg of Human Recombinant GM-CSF, ACF was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining.

## Related Products

For a complete list of cytokines, as well as related products available from STEMCELL Technologies, please visit our website at [www.stemcell.com/cytokines](http://www.stemcell.com/cytokines) or contact us at [techsupport@stemcell.com](mailto:techsupport@stemcell.com).

## References

- Barreda DR et al. (2004) Regulation of myeloid development and function by colony stimulating factors. *Dev Comp Immunol* 28(5):509–54.
- Broughton SE et al. (2012) The GM-CSF/IL-3/IL-5 cytokine receptor family: from ligand recognition to initiation of signaling. *Immunol Rev* 250(1): 277–302.
- Francisco-Cruz A et al. (2014) Granulocyte-macrophage colony-stimulating factor: not just another haematopoietic growth factor. *Med Oncol* 31(1): 774.

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