

Cytokines

Rat Recombinant GM-CSF



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Catalog #	78018.1	20 µg
	78018	100 µg
	78018.2	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 progenitor cells (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 cells (Francisco-Cruz et al.). The receptor for GM-CSF (GM-CSFR) is composed of two subunits: the cytokine-specific α subunit (GMR α ; CD116) and the common subunit β 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. GM-CSF is able to stimulate the development of DCs that ingest, process, and present antigens to the immune system (Francisco-Cruz et al.). Recombinant rat GM-CSF is reactive with mouse cells (Oaks et al.; Vandenabeele et al.).

Product Information

Alternative Names:	Colony-stimulating factor 2, CSF-2, MGI-1GM, Pluripoietic-alpha
Accession Number:	P48750
Amino Acid Sequence:	MAPTRSPNPV TRPWKHVDAI KEALSLLNDM RALENEKNED VDIISNEFSI QRPTCVQTRL KLYKQGLRGN LTKLNGALTM IASHYQTNCP PTPETDCEIE VTFEDFIKN LKGFLFDIPF DCWKPVQK
Predicted Molecular Mass:	14.7 kDa
Species:	Rat
Cross Reactivity:	Mouse
Formulation:	Lyophilized from a sterile filtered aqueous solution containing sodium bicarbonate, pH 8.5.
Source:	E. coli

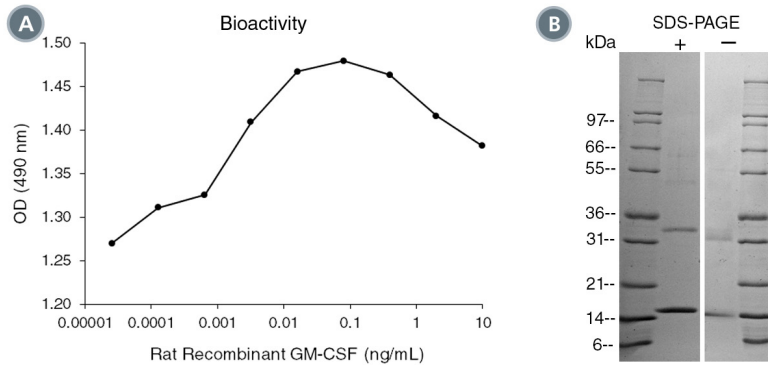
Specifications

Activity:	The specific activity is $\geq 5 \times 10^7$ units/mg ($EC_{50} \leq 0.02$ ng/mL) as determined by a cell proliferation assay using FDC-P1 cells.
Purity:	$\geq 95\%$
Endotoxin Level:	Measured by kinetic limulus amebocyte lysate (LAL) analysis and is ≤ 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.
Reconstitution:	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 Rat Recombinant GM-CSF was tested by its ability to promote the proliferation of FDC-P1 cells. Cell proliferation was measured after 91 hours of culture using a fluorometric assay method. The EC₅₀ is defined as the effective concentration of the growth factor at which cell proliferation is at 50% of maximum. The EC₅₀ in the above example is 0.9 - 1.3 pg/mL. (B) 1 µg of Rat Recombinant GM-CSF was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Rat Recombinant GM-CSF has a predicted molecular mass of 14.5 kDa.

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 or contact us at techsupport@stemcell.com.

References

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- 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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- Vandenabeele P et al. (1990) Response of murine cell lines to an IL-1/IL-2-induced factor in a rat/mouse T hybridoma (PC60): differential induction of cytokines by human IL-1 alpha and IL-1 beta and partial amino acid sequence of rat GM-CSF. *Lymphokine Res* 9(3): 381–9.

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