Cytokines

Rat Recombinant M-CSF

Macrophage colony-stimulating factor

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Scientists Helping Scientists™ | WWW.STEMCELL.COM
TOLL FREE PHONE 1 800 667 0322 • PHONE +1 604 877 0713
INFO@STEMCELL.COM • TECHSUPPORT@STEMCELL.COM
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Catalog #78117	5 µg
78117.1	25 µg

Product Description

Macrophage colony-stimulating factor (M-CSF) is a homodimeric cytokine that belongs to receptor tyrosine kinase subclass III of the receptor tyrosine kinase (RTK) family. M-CSF acts on a CSF-1 receptor tyrosine kinase, which initiates signaling cascades to support cell proliferation and differentiation (Hamilton). M-CSF is produced by endothelial cells, osteoblasts, and during pregnancy by the uterine epithelial cells (Ryan). M-CSF synergizes with other factors to support proliferation and differentiation of multipotent hematopoietic progenitor cells, and regulates proliferation and differentiation of the mononuclear phagocyte progenitor cells to monocytes and macrophages. It also supports survival, proliferation, and function of the differentiated macrophages and regulates differentiation of mononuclear phagocytes to osteoclasts (Pixley & Stanley). M-CSF plays an important role in the implantation of the embryo and early development (Makrigiannakis et al.).

Product Information

Alternative Names:	CSF-1, Macrophage colony-stimulating factor
Accession Number:	NP_076471.3
Amino Acid Sequence:	EVSEHCSHMI GNGHLQILQQ LIDSQMETAC LIEYKFVDQE QLDDPVCYLK KAFVLVQVII EETMRFKDNT PNANATERLQ ELSMKLNSCF IKDYKEQNEA CVQTYKESPL RLLEKIKNFF NETKNFLEKD WNIFSKNCND SFAKCSSRDV SFAKCSSRDV VTKP
Predicted Molecular Mass:	18 kDa
Species:	Rat
Formulation:	Lyophilized after dialysis against phosphate-buffered saline.
Source:	CHO

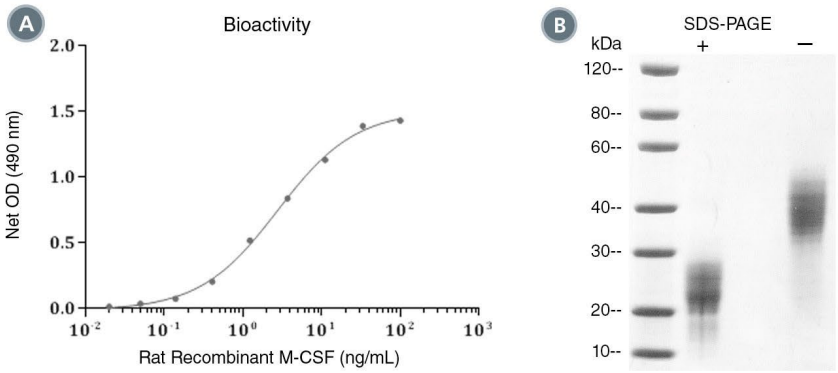
Specifications

Activity:	The specific activity is ≥ 4.0 x 10^5 units/mg (EC50 ≤ 2.5 ng/mL), as determined by a cell proliferation assay of mouse M-NFS-60 cells.
Purity:	≥ 95%
Endotoxin Level:	Measured by kinetic Limulus amebocyte lysate (LAL) analysis and is ≤ 0.2 EU/µg protein.

Preparation and Storage

Storage:	Store at -80°C.
Stability:	Stable as supplied for 12 months from date of receipt.
Preparation:	Centrifuge vial before opening. Reconstitute the product in sterile water to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex. As a general guide, do not store at 2 - 8°C for more than 1 week or at -20°C for more than 3 months. Avoid repeated freeze-thaw cycles.

Data



(A) The biological activity of Rat Recombinant M-CSF was tested by its ability to promote the proliferation of M-NFS-60 cells. 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 less than 2.5 ng/mL.

(B) 2 µg of Rat Recombinant M-CSF was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Rat Recombinant M-CSF has a predicted molecular mass of 18 kDa.

Related Products

For a complete list of cytokines, as well as related products available from STEMCELL Technologies, visit www.stemcell.com/cytokines, or contact us at techsupport@stemcell.com.

References

Hamilton JA. (1997) CSF-1 signal transduction. J Leukoc Biol 62(2): 145–55.

Makrigiannakis A et al. (2006) Hormonal and cytokine regulation of early implantation. Trends Endocrinol Metab 17(5): 178–85. Pixley FJ & Stanley ER. (2004) CSF-1 regulation of the wandering macrophage: complexity in action. Trends Cell Biol 14(11): 628–38.

Ryan GR. (2001) Rescue of the colony-stimulating factor 1 (CSF-1)-nullizygous mouse (Csf1op/Csf1op) phenotype with a CSF-1 transgene and identificationof sites of local CSF-1 synthesis. Blood 98(1): 74–84.