

# Cytokines

## Rat Recombinant M-CSF

### Macrophage colony-stimulating factor



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Catalog # 78117  
78117.1

5 µg  
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 EL SMKLN SCF IKDYKEQNEA CVQTYKESPL RLLEKIKNFF NETKNFLEKD WNIFSKNCND  
SLAKCSSRDV VTKP

**Predicted Molecular Mass:** 18 kDa

**Species:** Rat

**Cross Reactivity:** Mouse

**Formulation:** Lyophilized after dialysis against phosphate-buffered saline.

**Source:** CHO

## Specifications

**Activity:** The specific activity is  $\geq 4.0 \times 10^5$  units/mg ( $EC_{50} \leq 2.5$  ng/mL) as determined by a cell proliferation assay of mouse M-NFS-60 cells.

**Purity:**  $\geq 95\%$

**Endotoxin Level:** Measured by kinetic Limulus amebocyte lysate (LAL) analysis and is  $\leq 0.2$  EU/µg protein.

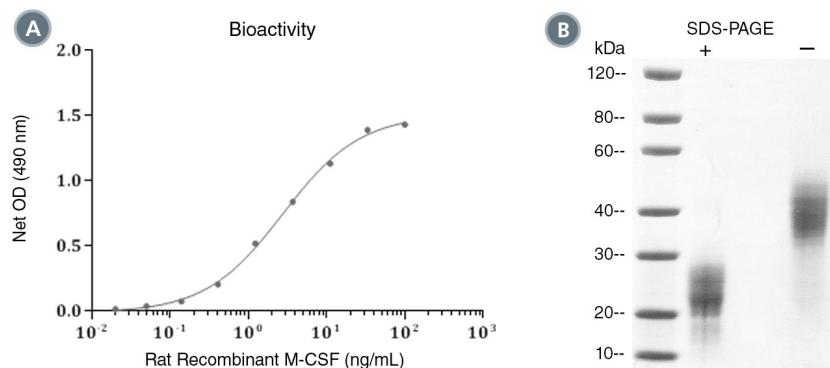
## Preparation and Storage

**Storage:** Store at  $-80^{\circ}\text{C}$ .

**Stability:** Stable as supplied for 12 months from date of receipt.

**Preparation:** Centrifuge vial before opening. Resuspend the product in sterile water or phosphate-buffered saline to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex. Store at  $2 - 8^{\circ}\text{C}$  for up to 1 week or at  $-20^{\circ}\text{C}$  to  $-80^{\circ}\text{C}$  for up to 2 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. Cell proliferation was measured using a fluorometric assay method. The EC<sub>50</sub> is defined as the effective concentration of the growth factor at which cell proliferation is at 50% of maximum. The EC<sub>50</sub> 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.

## Related Products

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## 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 identification of sites of local CSF-1 synthesis. *Blood* 98(1): 74–84.

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