Recombinant Human M-CSF

Catalog Number: 216-MC/CF

DESCRIPTION

Source	*E. coli*-derived human M-CSF protein Glu33-Ser190, with an N-terminal Met Accession # NP_757350
N-terminal Sequence Analysis	Met
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	18.5 kDa (monomer)

SPECIFICATIONS

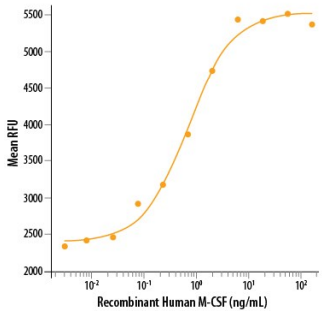
SDS-PAGE	37 kDa, non-reducing conditions
Activity	Measured in a cell proliferation assay using M-NFS-60 mouse myelogenous leukemia lymphoblast cells. Nakoinz, I. *et al.* (1990) J. Immunol. **145**:860. The ED_{50} for this effect is 0.5-1.5 ng/mL.
Endotoxin Level	<1.0 EU per 1 µg of the protein by the LAL method.
Purity	>97%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 50-500 µg/mL in sterile PBS.
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.

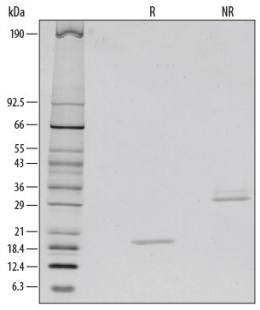
DATA

Bioactivity



Recombinant Human M-CSF Protein Bioactivity Recombinant Human M-CSF (Catalog # 216-MC/CF) stimulates cell proliferation of the M-NFS-60 mouse myelogenous leukemia lymphoblast cell line in a dose-dependent manner. The ED_{50} for this effect is 0.5-1.5 ng/mL.

SDS-PAGE



Recombinant Human M-CSF Protein SDS-PAGE 1 µg/lane of Recombinant Human M-CSF was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by silver staining, showing bands at 19 kDa and 35 kDa, respectively.

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BACKGROUND

M-CSF, also known as CSF-1, is a four-α-helical-bundle cytokine that is the primary regulator of macrophage survival, proliferation and differentiation (1-3). M-CSF is also essential for the survival and proliferation of osteoclast progenitors (1, 4). M-CSF also primes and enhances macrophage killing of tumor cells and microorganisms, regulates the release of cytokines and other inflammatory modulators from macrophages, and stimulates pinocytosis (2, 3). M-CSF increases during pregnancy to support implantation and growth of the decidua and placenta (5). Sources of M-CSF include fibroblasts, activated macrophages, endometrial secretory epithelium, bone marrow stromal cells and activated endothelial cells (1-5). The M-CSF receptor (*c-fms*) transduces its pleotropic effects and mediates its endocytosis. M-CSF mRNAs of various sizes occur (3-9). Full length human M-CSF transcripts encode a 522 amino acid (aa) type I transmembrane (TM) protein with a 464 aa extracellular region, a 21 aa TM domain, and a 37 aa cytoplasmic tail that forms a 140 kDa covalent dimer. Differential processing produces two proteolytically cleaved, secreted dimers. One is an N- and O- glycosylated 86 kDa dimer, while the other is modified by both glycosylation and chondroitin-sulfate proteoglycan (PG) to generate a 200 kDa subunit. Although PG-modified M-CSF can circulate, it may be immobilized by attachment to type V collagen (8). Shorter transcripts encode M-CSF that lacks cleavage and PG sites and produces an N-glycosylated 68 kDa TM dimer and a slowly produced 44 kDa secreted dimer (7). Although forms may vary in activity and half-life, all contain the N-terminal 150 aa portion that is necessary and sufficient for interaction with the M-CSF receptor (10, 11). The first 223 aa of mature human M-CSF shares 88%, 86%, 81% and 74% aa identity with corresponding regions of dog, cow, mouse and rat M-CSF, respectively (12, 13). Human M-CSF is active in the mouse, but mouse M-CSF is reported to be species-specific.

References:

1. Pixley, F.J. and E.R. Stanley (2004) Trends Cell Biol. **14**:628.
2. Chitu, V. and E.R. Stanley (2006) Curr. Opin. Immunol. **18**:39.
3. Fixe, P. and V. Praloran (1997) Eur. Cytokine Netw. **8**:125.
4. Ryan, G.R. *et al.* (2001) Blood **98**:74.
5. Makrigiannakis, A. *et al.* (2006) Trends Endocrinol. Metab. **17**:178.
6. Nandi, S. *et al.* (2006) Blood **107**:786.
7. Rettenmier, C.W. and M.F. Roussel (1988) Mol. Cell Biol. **8**:5026.
8. Suzu, S. *et al.* (1992) J. Biol. Chem. **267**:16812.
9. Manos, M.M. (1988) Mol. Cell. Biol. **8**:5035.
10. Koths, K. (1997) Mol. Reprod. Dev. **46**:31.
11. Jang, M-H. *et al.* (2006) J. Immunol. **177**:4055.
12. Kawasaki, E.S. *et al.* (1985) Science **230**: 291.
13. Wong, G.G. *et al.* (1987) Science **235**:1504.

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