

Cytokines

Human Recombinant M-CSF, ACF

Macrophage colony-stimulating factor, animal component-free



Scientists Helping Scientists™ | WWW.STEMCELL.COM

TOLL FREE PHONE 1 800 667 0322 • PHONE +1 604 877 0713

INFO@STEMCELL.COM • TECHSUPPORT@STEMCELL.COM

FOR GLOBAL CONTACT DETAILS VISIT OUR WEBSITE

Catalog #	78150	10 µg
	78150.1	100 µg
	78150.2	1000 µg

Product Description

Macrophage colony-stimulating factor (M-CSF) is a homodimeric glycoprotein growth factor that regulates proliferation and differentiation of myeloid hematopoietic progenitors to mononuclear phagocytic cell lineages, including monocytes, macrophages, and osteoclasts. M-CSF is a crucial factor for the development of tissue-resident macrophages in most tissues (Ginhoux & Jung). It is required for the maturation and activation of monocytes and macrophages, and regulates inflammatory responses in conjunction with other stimuli such as IFN- γ , LPS, and IL-4 (Murray et al.). M-CSF is also required for bone resorption by osteoclasts, and is involved in the development and regulation of placenta, mammary gland, and brain. M-CSF is produced by monocytes, fibroblasts, osteoclasts, stromal cells, endothelial cells, and tumor cells (Chockalingam & Ghosh).

M-CSF exerts its biological effects by signaling through a receptor tyrosine kinase (CSF-1R or M-CSF-R) encoded by the c-fms proto-oncogene (Hamilton). CSF-1R shares similar structural features with other growth factor receptors, including the stem cell factor (SCF) receptor, platelet-derived growth factor receptor (PDGF-R), and Flt3/Flk-2 receptor tyrosine kinase. Stimulation of the CSF-1R upon binding to M-CSF activates MAPK, PI3K, and PLC γ signaling pathways (Chockalingam & Ghosh). Human and mouse M-CSF sequences are highly conserved both at nucleotide and amino acid levels (80% homology; DeLamar et al.). This product is animal component-free.

Product Information

Alternative Names:	Colony stimulating factor 1, CSF-1
Accession Number:	P09603
Amino Acid Sequence:	MEEVSEYCSH MIGSGHLQSL QRLIDSQMET SCQITFEFVD QEQLKDPVCY LKKAFLVQD IMEDTMRFRD NTPNAIAIVQ LQELSLRLKS CFTKDYEEHD KACVRTFYET PLQLEKVKVNFNETKNLLD KDOWNIFSKNC NNSFAECSSQ GHERQSEGS
Predicted Molecular Mass:	18.5 kDa monomer; 37.1 kDa dimer
Species:	Human
Cross Reactivity:	Mouse
Formulation:	Lyophilized from a sterile-filtered aqueous solution containing sodium phosphate, sodium chloride, pH 8.0
Source:	E. coli

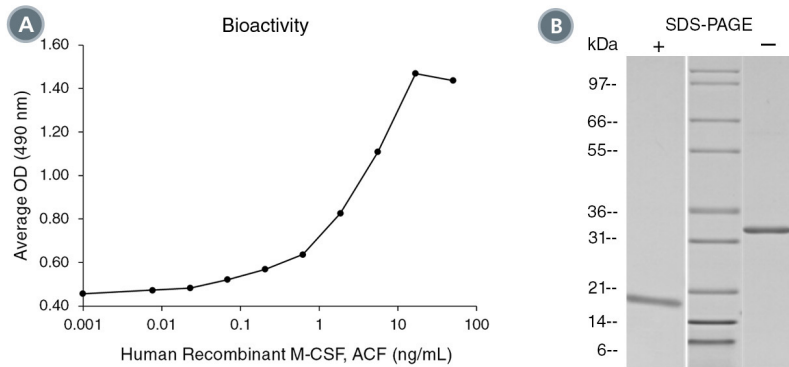
Specifications

Activity:	The specific activity is $\geq 1.0 \times 10^5$ units/mg ($EC_{50} \leq 10$ ng/mL) as determined by proliferation of NFS-60 cells.
Purity:	$\geq 95\%$
Endotoxin Level:	Measured by kinetic Limulus amoebocyte lysate (LAL) analysis and is ≤ 1 EU/ μ g 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 M-CSF, ACF was tested by its ability to promote the proliferation of NFS-60 cells. Cell proliferation was measured after 62 hours of culture using a fluorometric assay method. The EC50 is defined as the effective concentration of the cytokine at which cell proliferation is at 50% of maximum. The EC50 in the example above is 3 ng/mL.

(B) 1 µg of Human Recombinant M-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 or contact us at techsupport@stemcell.com.

References

- Chockalingam S & Ghosh SS. (2014) Macrophage colony-stimulating factor and cancer: a review. *Tumour Biol* 35(11): 10635–44.
- DeLamar JF et al. (1987) Nucleotide sequence of a cDNA encoding murine CSF-1 (Macrophage-CSF). *Nucleic Acids Res* 15(5): 2389–90.
- Ginhoux F & Jung S. (2014) Monocytes and macrophages: developmental pathways and tissue homeostasis. *Nat Rev Immunol* 14(6): 392–404.
- Hamilton JA. (1997) CSF-1 signal transduction. *J Leukoc Biol* 62(2): 145–55.
- Murray PJ et al. (2014) Macrophage activation and polarization: nomenclature and experimental guidelines. *Immunity* 41(1): 14–20.

STEMCELL TECHNOLOGIES INC.'S QUALITY MANAGEMENT SYSTEM IS CERTIFIED TO ISO 13485. PRODUCTS ARE FOR RESEARCH USE ONLY AND NOT INTENDED FOR HUMAN OR ANIMAL DIAGNOSTIC OR THERAPEUTIC USES UNLESS OTHERWISE STATED.

Copyright © 2017 by STEMCELL Technologies Inc. All rights reserved including graphics and images. STEMCELL Technologies & Design, STEMCELL Shield Design, and Scientists Helping Scientists are trademarks of STEMCELL Technologies Canada Inc. All other trademarks are the property of their respective holders. While STEMCELL has made all reasonable efforts to ensure that the information provided by STEMCELL and its suppliers is correct, it makes no warranties or representations as to the accuracy or completeness of such information.