

Cytokines

Human Recombinant M-CSF, ACF

Macrophage colony-stimulating
factor, animal component-free

Catalog #	78150	10 µg
	78150.1	100 µg
	78150.2	1000 µg



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Product Description

Macrophage colony-stimulating factor (M-CSF) is a homodimeric glycoprotein growth factor that regulates proliferation and differentiation of myeloid hematopoietic progenitor cells 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 glands, 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/Fik-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; DeLamarter 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 PLQLLEKVKN VFNETKLLLD KDWNIFSKNC 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 and sodium chloride, pH 8.0.
Source:	E. coli

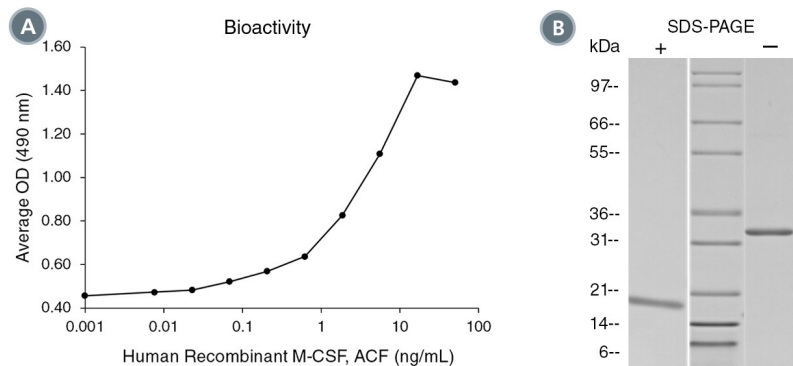
Specifications

Activity:	The EC ₅₀ is ≤ 10 ng/mL as determined by a cell proliferation assay using NFS-60 cells. The specific activity is approximately 1.02×10^5 IU/ μ g as calibrated against the human recombinant M-CSF WHO International Standard (NIBSC code: 89/512).
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. 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. OPTIONAL: After reconstitution, if product will not be used immediately, dilute with concentrated bovine serum albumin (BSA) to a final BSA concentration of 0.1%. The effect of storage of stock solution on product performance should be tested for each application. As a general guide, do not store at 2 - 8°C for more than 1 month or at -80°C for more than 3 months. Avoid repeated freeze-thaw cycles.

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 growth factor at which cell proliferation is at 50% of maximum. The EC₅₀ in the above example 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. Human Recombinant M-CSF, ACF is a homodimer of 18.5 kDa subunits with a predicted total molecular mass of 37.1 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

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