

Recombinant Human M-CSF (carrier-free)

Catalog# / Size	574808 / 500 µg 574802 / 10 µg 574804 / 25 µg 574806 / 100 µg
Regulatory Status	RUO
Other Names	CSF1, CSF-1, MCSF
Description	<p>M-CSF was first characterized as a glycoprotein that induces monocyte and macrophage colony formation from precursors in murine bone marrow cultures. M-CSF is constitutively present at biologically active concentrations in human serum. It binds CD14+ monocytes and promotes the survival/proliferation of human peripheral blood monocytes. In addition, M-CSF enhances inducible monocyte functions including phagocytic activity, microbial killing, cytotoxicity for tumor cells as well as synthesis of inflammatory cytokines such as IL-1, TNFα, and INFγ in monocytes. M-CSF induces RANKL production in mature human osteoclasts; consequently, M-CSF is a potent stimulator of mature osteoclast resorbing activity. Also, M-CSF induces VEGF in human monocytes in human tumors; high levels of M-CSF, mononuclear phagocytes, and VEGF are associated with poor prognosis in patients with cancer. High levels of M-CSF have been associated with different pathologies such as pulmonary fibrosis and atherosclerosis. M-CSF binds to its receptor M-CSFR, and this receptor is shared by a second ligand, IL-34. Human M-CSF and IL-34 exhibit cross-species specificity – both bind to human and mouse M-CSF receptors.</p>

Product Details

Source	Human M-CSF, amino acids Glu33-Ser190 (Accession# NM_172212.2) was expressed in 293E cells.
Molecular Mass	The 179 amino acid recombinant protein has a predicted molecular mass of approximately 20.6 kD. The DTT-reduced and non-reduced protein migrate at approximately 25- 35 kD and 55-70 kD respectively by SDS-PAGE. The N-terminal contains a His9-(SGGG)2-IEGR-tag.
Purity	>98%, as determined by Coomassie stained SDS-PAGE.
Formulation	0.22 µm filtered protein solution is in PBS.
Endotoxin Level	Less than 0.01 ng per µg cytokine as determined by the LAL method.
Concentration	10 and 25 µg sizes are bottled at 200 µg/mL. 100 µg size and larger sizes are lot-specific and bottled at the concentration indicated on the vial. To obtain lot-specific concentration, please enter the lot number in our Concentration and Expiration Lookup or Certificate of Analysis online tools.
Storage & Handling	Unopened vial can be stored between 2°C and 8°C for up to 2 weeks, at -20°C for up to six months, or at -70°C or colder until the expiration date. For maximum results, quick spin vial prior to opening. The protein can be aliquoted and stored at -20°C or colder. Stock solutions can also be prepared at 50 - 100 µg/mL in appropriate sterile buffer, carrier protein such as 0.2 - 1% BSA or HSA can be added when preparing the stock solution. Aliquots can be stored between 2°C and 8°C for up to one week and stored at -20°C or colder for up to 3 months. Avoid repeated freeze/thaw cycles.
Activity	ED ₅₀ = 0.5 - 2 ng/ml, corresponding to a specific activity of 0.5 - 2 x 10 ⁶ units/mg, as determined by M-NFS60 cell proliferation induced by human M-CSF in a dose dependent manner.
Application	Bioassay
Application Notes	BioLegend carrier-free recombinant proteins provided in liquid format are shipped on blue-ice. Our comparison testing data indicates that when handled and stored as recommended, the liquid format has equal or better stability and shelf-life compared to commercially available lyophilized proteins after reconstitution. Our liquid proteins are verified in-house to maintain activity after shipping on blue ice and are backed by our 100% satisfaction guarantee . If you have any concerns, contact us at tech@biolegend.com .

Application References

1. Lou J, et al. 2014. *J Cell Sci.* 127:5228. [PubMed](#)

(PubMed link indicates
BioLegend citation)

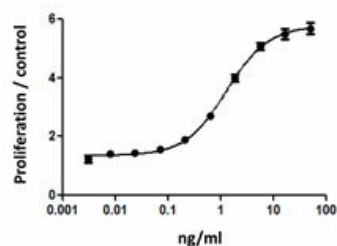
Product Citations

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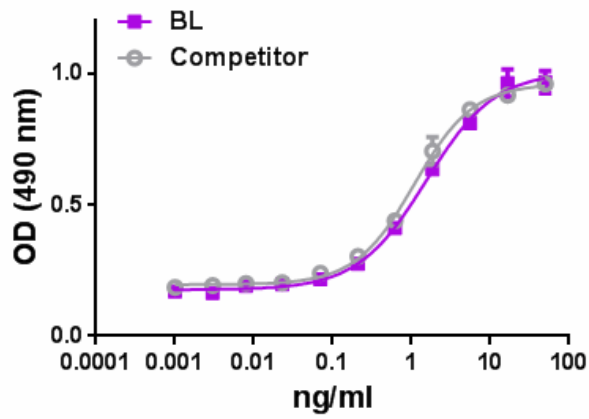
Antigen Details

Structure	Disulfide-linked glycosylated homodimer
Interaction	Monocytes, macrophages, mononuclear phagocyte precursors, microglia, proliferating smooth muscle cells, umbilical vein endothelial cells, and breast cancer cell lines.
Ligand/Receptor	M-CSFR or CSF1R (CD115)
Cell Type	Embryonic Stem Cells, Hematopoietic stem and progenitors
Biology Area	Cell Biology, Cell Proliferation and Viability, Immunology, Stem Cells
Molecular Family	Cytokines/Chemokines, Growth Factors
Antigen References	<ol style="list-style-type: none">1. Kawasaki ES, <i>et al.</i> 1985. <i>Science</i> 230:291.2. Wei S, <i>et al.</i> 2010. <i>J. Leukoc. Biol.</i> 88:495.3. Hodge JM, <i>et al.</i> 2011. <i>PLoS One</i> 6:e21462.4. Morandi A, <i>et al.</i> 2011. <i>PLoS One</i> 6:e27450.5. Erbllich B, <i>et al.</i> 2011. <i>PLoS One</i> 6:e26317.6. MacDonald KP, <i>et al.</i> 2010. <i>Blood</i> 116:3955.
Gene ID	1435

Product Data



M-NFS-60 cell proliferation induced by human M-CSF.



Recombinant human M-CSF induces the proliferation of mouse M-NFS60 cell line in a dose dependent manner. BioLegend's protein was compared side-by-side to the leading competitor's equivalent product.

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