PRODUCT INFORMATION

M-CSF-β (mouse, recombinant)

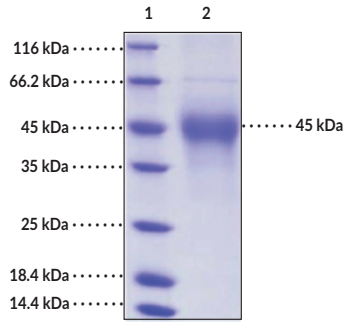
Item No. 32080

Overview and Properties

Synonym:	CSF-1
Source:	Recombinant mouse M-CSF-β expressed in HEK293 cells
Amino Acids:	33-262
Uniprot No.:	P07141-1
Molecular Weight:	26 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥95% as determined by SDS-PAGE
Supplied in:	Lyophilized from sterile PBS, pH 7.4
Endotoxin Testing:	<1.0 EU/µg, determined by the LAL endotoxin assay
Bioactivity:	Immobilized mouse M-CSF- at 10 µg/ml (100 µl/well) can bind mouse CSF-1R-Fch. The EC_{50} value of mouse CSF-1R-Fch is 0.04-0.1 µg/ml.

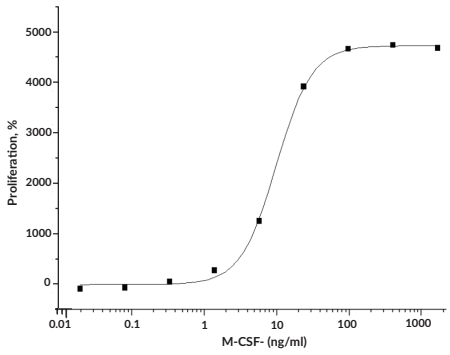
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images



Lane 1: MW Markers
Lane 2: M-CSF-β

SDS-PAGE Analysis of M-CSF-β. This protein has a calculated molecular weight of 26 kDa. It has an apparent molecular weight of approximately 45 kDa by SDS-PAGE under reducing conditions due to glycolsylation.



Cell proliferation assay using M-NFS-60 mouse myelogenous leukemia lymphoblast cells. The EC_{50} value for this effect is typically 3-15 ng/ml.

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Description

Macrophage colony-stimulating factor (M-CSF) is a glycoprotein encoded by *Csf1* in mice that promotes the differentiation, proliferation, and function of mononuclear phagocytes, including macrophages, osteoclasts, and dendritic cells.[1] Alternative splicing of *Csf1* pre-mRNA produces one full-length long isoform (M-CSF-β), an intermediate-length isoform (M-CSF-γ), and a short-length isoform (M-CSF-α) that share sequence homology in the 150-amino acid receptor binding region which is required for the biological activity of M-CSF.[2,3] M-CSF exists as a disulfide-linked homodimer where each monomer contains four α-helices, an anti-parallel β-sheet, and numerous glycosylation sites.[1] M-CSF is constitutively produced by many cell types, including stromal cells, osteoclasts, fibroblasts, and macrophages, and is localized to the cell surface where it can be proteolytically cleaved to yield a secreted form.[4,5] Binding of M-CSF to the M-CSF receptor, which is expressed by monocytes, macrophages, osteoclasts, and dendritic cells, promotes cell differentiation, proliferation, and survival of mononuclear phagocytes and regulates bone resorption by osteoclasts.[4,8] Mice homozygous for *Csf1*^{op}, an inactivating mutation, exhibit defects in fertility and neural development and develop osteopetrosis, a condition characterized by increased bone density.[6] Neutralization of M-CSF with a monoclonal antibody decreases joint swelling and distortion in a mouse model of collagen-induced arthritis.[7] M-CSF has been used to generate bone marrow- or peripheral blood monocyte-derived macrophages with an anti-inflammatory phenotype *in vitro*.[8,9] Cayman's M-CSF-β (mouse, recombinant) protein can be used for binding and cell-based assay applications. This protein consists of 230 amino acids, has a calculated molecular weight of 26 kDa, and a predicted N-terminus of Lys33 after signal peptide cleavage. By SDS-PAGE, under reducing conditions, the observed molecular mass of the protein is approximately 45 kDa due to glycosylation.

References

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