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Recombinant Human M-CSF Protein (C-His)

Catalog Number:	631401, 631402
Size:	100 µg, 1 mg
Target Name:	MCSF, CSF1, CSF-1
Regulatory Status:	RUO

PRODUCT DETAILS

Application:	Bioassay
Format:	Lyophilized from sterile PBS, pH 7.4.
Expression Host:	HEK293
Species:	Human
accession number:	P09603-1
Sources:	A DNA sequence encoding the N-terminal fragment (Met 1-Asn 190) of human CSF1 (P09603-1) was fused with a polyhistidine tag at the C-terminus.
Molecular Weight:	The recombinant human CSF1 consists of 169 amino acids and predictes a molecular mass of 19.8 kDa. In SDS-PAGE under reducing conditions, the apparent molecular mass of rhCSF1 is approximately 27-32 kDa band due to glycosylation.
Affinity Tag:	C-His
Purity:	> 95 % as determined by SDS-PAGE.
Endotoxin level:	< 1.0 EU per µg protein
Protein Concentration:	Lyophilized
Storage and Handling:	Proteins are stable for up to twelve months from date of receipt at -20℃ to -80℃. Store it under sterile conditions at -20℃ to -80℃. It is recommended that the protein be aliquoted for optimal storage. Avoid repeated freeze-thaw cycles.

BACKGROUND INFORMATION

Human macrophage colony-stimulating factor (M-CSF), also known as CSF-1, is a key cytokine that regulates the survival, proliferation, and differentiation of monocytes, macrophages, and osteoclasts. It is produced by a variety of cell types, including fibroblasts, endothelial cells, and stromal cells, and plays a central role in innate immunity, tissue homeostasis, and bone remodeling. M-CSF is essential for the development of the mononuclear phagocyte system and influences macrophage polarization and function in response to environmental cues.

Structurally, M-CSF exists as a homodimeric glycoprotein and can be found in secreted, membrane-bound, and proteoglycan-associated forms generated through alternative splicing. Its primary receptor is CSF-1R (CD115), a class III receptor tyrosine kinase expressed on monocytes and macrophages. Binding of M-CSF induces receptor dimerization and autophosphorylation, activating downstream signaling pathways such as PI3K/AKT, MAPK, and ERK, which promote cell survival and

differentiation. M-CSF shares its receptor with another ligand, IL-34, which can also activate CSF-1R and modulate similar biological processes.

Dysregulation of M-CSF signaling is implicated in various diseases, including cancer, where it promotes tumor-associated macrophage development and immune suppression, as well as in inflammatory conditions and bone disorders such as osteoporosis. Therapeutically, targeting the M-CSF/CSF-1R axis with inhibitors or antibodies is being explored to modulate macrophage activity in cancer and chronic inflammation. Conversely, recombinant M-CSF has potential applications in enhancing immune recovery and tissue repair.

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