

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived human M-CSF R/CD115 protein			
	Human M-CSF R (Ile20-Glu512) Accession # CAA27300	DIEGRMD	Human IgG ₁ (Pro100-Lys330)	6-His tag
	N-terminus		C-terminus	
N-terminal Sequence	Ile20			
Analysis				
Structure / Form	Disulfide-linked homodimer			
Predicted Molecular Mass	81 kDa (monomer)			

SPECIFICATIONS

SDS-PAGE	109-128 kDa, reducing conditions
Activity	Measured by its ability to inhibit the M-CSF-induced proliferation of M-NFS-60 mouse myelogenous leukemia lymphoblast cells. Halenbeck, R. <i>et al.</i> (1989) <i>Biotechnology</i> 7:710. The ED ₅₀ for this effect is 0.004-0.012 µg/mL in the presence of 1 ng/mL of Recombinant Human M-CSF (Catalog # 216-MC).
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>97%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with BSA as a carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 µg/mL in sterile PBS containing at least 0.1% human or bovine serum albumin.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	<p>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</p> <ul style="list-style-type: none"> • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

M-CSF receptor, the product of the *c-fms* proto-oncogene, is a member of the type III subfamily of receptor tyrosine kinases that also includes receptors for SCF and PDGF. These receptors each contain five immunoglobulin-like domains in their extracellular domain (ECD) and a split kinase domain in their intracellular region (1-4). M-CSF receptor is expressed primarily on cells of the monocyte/macrophage lineage, dendritic cells, stem cells and in the developing placenta (1). Human M-CSF receptor cDNA encodes a 972 amino acid (aa) type I membrane protein with a 19 aa signal peptide, a 493 aa extracellular region containing the ligand-binding domain, a 25 aa transmembrane domain and a 435 aa cytoplasmic domain. The human M-CSF R ECD shares 60%, 64%, 72%, 75%, 75% and 76% aa identity with mouse, rat, bovine, canine, feline and equine M-CSF R, respectively. Activators of protein kinase C induce TACE/ADAM17 cleavage of the M-CSF receptor, releasing the functional ligand-binding extracellular domain (5). M-CSF binding induces receptor homodimerization, resulting in transphosphorylation of specific cytoplasmic tyrosine residues and signal transduction (6). The intracellular domain of activated M-CSF R binds more than 150 proteins that affect cell proliferation, survival, differentiation and cytoskeletal reorganization. Among these, PI3Kinase, P42/44 ERK and c-Cbl are key transducers of M-CSF R signals (3, 4). M-CSF R engagement is continuously required for macrophage survival and regulates lineage decisions and maturation of monocytes, macrophages, osteoclasts and DC (3, 4). M-CSF R and integrin α₃β₃ share signaling pathways during osteoclastogenesis and deletion of either causes osteopetrosis (7, 8). In the brain, microglia expressing increased M-CSF R are concentrated with Alzheimers aβ peptide, but their role in pathogenesis is unclear (9, 10).

References:

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