

DESCRIPTION

Species Reactivity	Mouse
Specificity	Detects mouse M-CSF R/CD115 in direct ELISAs. In direct ELISAs, no cross-reactivity with recombinant human M-CSF R/CD115, recombinant mouse (rm) PDGF R β , or rmFit-3 Ligand is observed.
Source	Monoclonal Rat IgG _{2B} Clone # 460615
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Mouse myeloma cell line NS0-derived recombinant mouse M-CSF R/CD115 Ala20-Ser511 Accession # P09581
Conjugate	Alexa Fluor 488 Excitation Wavelength: 488 nm Emission Wavelength: 515-545 nm
Formulation	Supplied 0.2 mg/mL in a saline solution containing BSA and Sodium Azide. See Certificate of Analysis for details. *Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions.

APPLICATIONS

Please Note: Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

	Recommended Concentration	Sample
Flow Cytometry	0.25-1 µg/10 ⁶ cells	RAW 264.7 mouse monocyte/macrophage cell line

PREPARATION AND STORAGE

Shipping	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	Protect from light. Do not freeze. <ul style="list-style-type: none"> 12 months from date of receipt, 2 to 8 °C as supplied.

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). Mouse M-CSF receptor cDNA encodes a 977 amino acid (aa) type I membrane protein with a 19 aa signal peptide, a 492 aa extracellular region containing the ligand-binding domain, a 25 aa transmembrane domain and a 441 aa cytoplasmic domain. The mouse M-CSF R ECD shares >99% aa identity with rat and 60-63% aa identity with corresponding sequences in human, canine, feline and bovine M-CSF R. 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 $\alpha\beta_3$ 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 $\alpha\beta$ peptide, but their role in pathogenesis is unclear (9, 10).

References:

- deParseval, N. *et al.* (1993) *Nucleic Acids Res.* **21**:750.
- Rothwell, V.M. and L.R. Rohrschneider (1987) *Oncogene Res.* **1**:311.
- Chitu, V. and E.R. Stanley (2006) *Curr. Opin. Immunol.* **18**:39.
- Ross, F.P. and S.L. Teitelbaum (2005) *Immunol. Rev.* **208**:88.
- Rovida, E. *et al.* (2001) *J. Immunol.* **166**:1583.
- Yeung, Y. *et al.* (1998) *J. Biol. Chem.* **273**:17128.
- Dai, X. *et al.* (2002) *Blood* **99**:111.
- Faccio, R. *et al.* (2003) *J. Clin. Invest.* **111**:749.
- Li, M. *et al.* (2004) *J. Neurochem.* **91**:623.
- Mitrasinovic, O.M. *et al.* (2005) *J. Neurosci.* **25**:4442.

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