

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human GM-CSF R α in direct ELISAs and Western blots. In direct ELISAs and Western blots, no cross-reactivity with recombinant human (rh) M-CSF R or rhGM-CSF R β (β_c) is observed.
Source	Monoclonal Mouse IgG ₁ Clone # 31916
Purification	Protein A or G purified from ascites
Immunogen	<i>S. frugiperda</i> insect ovarian cell line Sf 21-derived recombinant human GM-CSF R α Extracellular domain
Conjugate	Alexa Fluor 350 Excitation Wavelength: 346 nm Emission Wavelength: 442 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 μ g/10 ⁶ cells	Human peripheral blood monocytes

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

Granulocyte macrophage colony stimulating factor receptor alpha (GM-CSF R α), also known as CD116, is a component of the receptor complex that mediates cellular responses to GM-CSF. GM-CSF promotes the differentiation and mobilization of granulocyte-macrophage, erythroid, megakaryocyte, and eosinophil progenitors. It enhances the activation of myeloid cell effector functions and plays a role in the development of Th1 biased immune responses, allergic inflammation, and autoimmunity (1-4). Mature human GM-CSF R α is an 80 kDa type I transmembrane glycoprotein that consists of a 298 amino acid (aa) extracellular domain (ECD) with two fibronectin type III domains and a juxtamembrane WSxWS motif, a 26 aa transmembrane segment, and a 54 aa cytoplasmic domain (5). Within the ECD, human GM-CSF R α shares approximately 33% aa sequence identity with mouse and rat GM-CSF R α . Alternative splicing of human GM-CSF R α generates several additional isoforms that lack the cytoplasmic and/or transmembrane regions. Soluble forms of the receptor retain the ability to bind GM-CSF (6, 7). GM-CSF R α is expressed on hematopoietic stem cells, progenitor and differentiated cells in the myeloid lineage, vascular endothelial cells, placenta, and non-hematopoietic solid tumor cells (8). GM-CSF R α associates with the common beta chain/CD131 (β_c), a 135 kDa transmembrane protein that is also the signal transducing component of the receptors for IL-3 and IL-5 (9, 10). Association with β_c converts GM-CSF R α from a low affinity to a high affinity receptor for GM-CSF (9-11). The shared usage of β_c underlies the synergism between GM-CSF, IL-3, and IL-5 in their effects on myeloid cell differentiation and activation (1, 2).

References:

- Martinez-Moczygemba, M. and D.P. Huston (2003) *J. Allergy Clin. Immunol.* **112**:653.
- Fleetwood, A.J. *et al.* (2005) *Crit. Rev. Immunol.* **25**:405.
- Eksioglu, E.A. *et al.* (2007) *Exp. Hematol.* **35**:1163.
- Cao, Y. (2007) *J. Clin. Invest.* **117**:2362.
- Gearing, D.P. *et al.* (1989) *EMBO J.* **8**:3667.
- Pelley, J.L. *et al.* (2007) *Exp. Hematol.* **35**:1483.
- Raines, M.A. *et al.* (1991) *Proc. Natl. Acad. Sci. USA* **88**:8203.
- Chiba, S. *et al.* (1990) *Cell Regul.* **1**:327.
- Kitamura, T. *et al.* (1991) *Proc. Natl. Acad. Sci. USA* **88**:5082.
- Hayashida, K. *et al.* (1990) *Proc. Natl. Acad. Sci. USA* **87**:9655.
- Hoang, T. *et al.* (1993) *J. Biol. Chem.* **268**:11881.

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