

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human G-CSF R/CD114 in direct ELISAs and Western blots. In direct ELISAs and Western blots, no cross-reactivity with recombinant human (rh) GM-CSF R α , rhGM-CSF R β , or rhM-CSF R is observed.
Source	Monoclonal Mouse IgG ₁ Clone # 38660
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Mouse myeloma cell line NS0-derived recombinant human G-CSF R/CD114 Glu25-Pro621 Accession # Q99062
Conjugate	Alexa Fluor 750 Excitation Wavelength: 749 nm Emission Wavelength: 775 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	Human whole blood monocytes and granulocytes

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. ● 12 months from date of receipt, 2 to 8 °C as supplied.

BACKGROUND

Granulocyte Colony Stimulating Factor (G-CSF) is a pleiotropic cytokine best known for its specific effects on the proliferation, differentiation, and activation of hematopoietic cells of the neutrophilic granulocyte lineage. G-CSF plays an important role in defense against infection, in inflammation and repair, and in the maintenance of steady state hematopoiesis. Recombinant human G-CSF has been approved for the amelioration of chemotherapy induced neutropenia as well as for severe chronic neutropenia following marrow transplant.

Cell activation by G-CSF is mediated by a type I membrane protein belonging to the cytokine receptor superfamily. Human G-CSF R, also known as colony-stimulating factor 3 receptor (CSF3R) and designated CD114, is 863 amino acids (aa) in length, with a 604 aa extracellular domain, a 26 aa transmembrane domain, and a 183 aa cytoplasmic domain that include a 23 amino acid signal sequence. As a result of alternative splicing, at least four isoforms of G-CSF R that differ in their C-terminal region exist. Isoform 2 lacks the transmembrane region and may represent a soluble form of the receptor; however the existence of soluble G-CSF R in human serum has not been reported (1). Mutations have been found in the gene encoding G-CSF R in some patients with severe congenital neutropenia. These mutations typically led to a truncation in the cytoplasmic domain of the G-CSF R leading to maturation arrest of neutrophil precursors in the bone marrow and neutropenia in peripheral blood (2). Human and mouse G-CSF R have a homology of 62.5%.

G-CSF R is expressed in mature neutrophils, neutrophilic precursors, myeloid leukemia cells, and placenta. Binding of G-CSF to its receptor induces dimerization or oligomerization of the receptor activating cytoplasmic tyrosine kinases. Signal transduction from pathways that involve Janus tyrosine kinases/signal transducer and activator of transcription proteins (Jak1, Jak2, and Tyk2/STAT3, STAT3, and STAT6), src-related protein tyrosine kinases (Lyn and Syk), Ras/MAP kinase, and phosphatidylinositol have been reported to be activated upon G-CSF stimulation (1).

References:

1. Nicola, N.A., in *Cytokine Reference*, (2001) Oppenheim, J.J. and M. Feldmann, eds. Academic Press p. 1935
2. Mitsui, T. *et. al.* (2003) *Blood*. **101**:2990.

PRODUCT SPECIFIC NOTICES

This product is provided under an agreement between Life Technologies Corporation and R&D Systems, Inc, and the manufacture, use, sale or import of this product is subject to one or more US patents and corresponding non-US equivalents, owned by Life Technologies Corporation and its affiliates. The purchase of this product conveys to the buyer the non-transferable right to use the purchased amount of the product and components of the product only in research conducted by the buyer (whether the buyer is an academic or for-profit entity). The sale of this product is expressly conditioned on the buyer not using the product or its components (1) in manufacturing; (2) to provide a service, information, or data to an unaffiliated third party for payment; (3) for therapeutic, diagnostic or prophylactic purposes; (4) to resell, sell, or otherwise transfer this product or its components to any third party, or for any other commercial purpose. Life Technologies Corporation will not assert a claim against the buyer of the infringement of the above patents based on the manufacture, use or sale of a commercial product developed in research by the buyer in which this product or its components was employed, provided that neither this product nor any of its components was used in the manufacture of such product. For information on purchasing a license to this product for purposes other than research, contact Life Technologies Corporation, Cell Analysis Business Unit, Business Development, 29851 Willow Creek Road, Eugene, OR 97402, Tel: (541) 465-8300. Fax: (541) 335-0354.