

## DESCRIPTION

<b>Species Reactivity</b>	Rat
<b>Specificity</b>	Detects rat GM-CSF in direct ELISAs and Western blots. In direct ELISAs and Western blots, no cross-reactivity with recombinant GM-CSF from mouse, human, or pig is observed.
<b>Source</b>	Monoclonal Mouse IgG <sub>2B</sub> Clone # 83308
<b>Purification</b>	Protein A or G purified from hybridoma culture supernatant
<b>Immunogen</b>	<i>E. coli</i> -derived recombinant rat GM-CSF Ala1-Lys127 Accession # P48750
<b>Conjugate</b>	Alexa Fluor 647 Excitation Wavelength: 650 nm Emission Wavelength: 668 nm
<b>Formulation</b>	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
<b>Intracellular Staining by Flow Cytometry</b>	0.25-1 µg/10 <sup>6</sup> cells	Rat splenocytes fixed with paraformaldehyde and permeabilized with saponin

## PREPARATION AND STORAGE

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

## BACKGROUND

GM-CSF was initially characterized as a factor that can support the *in vitro* colony formation of granulocyte-macrophage progenitors. It is also a growth factor for erythroid, megakaryocyte, and eosinophil progenitors. GM-CSF is produced by a number of different cell types (including T cells, B cells, macrophages, mast cells, endothelial cells, fibroblasts, and adipocytes) in response to cytokine or inflammatory stimuli. On mature hematopoietic cells, GM-CSF is a survival factor for and activates the effector functions of granulocytes, monocytes/macrophages, and eosinophils (1, 2). GM-CSF promotes a Th1 biased immune response, angiogenesis, allergic inflammation, and the development of autoimmunity (3-5). It shows clinical effectiveness in ameliorating chemotherapy-induced neutropenia, and GM-CSF transfected tumor cells are utilized as cancer vaccines (6, 7). The 22 kDa glycosylated GM-CSF, similar to IL-3 and IL-5, is a cytokine with a core of four bundled  $\alpha$ -helices (8-10). Mature rat GM-CSF shares 56%-69% amino acid sequence identity with canine, feline, human, mouse, and porcine GM-CSF. GM-CSF exerts its biological effects through a heterodimeric receptor complex composed of GM-CSF R $\alpha$ /CD116 and the signal transducing common  $\beta$  chain (CD131) which is also a component of the high-affinity receptors for IL-3 and IL-5 (11, 12). In addition, GM-CSF binds a naturally occurring soluble form of GM-CSF R $\alpha$  (13). Rat GM-CSF is active on mouse cells, although mouse GM-CSF is only weakly active on rat cells (14, 15).

## References:

- Martinez-Moczygemba, M. and D.P. Huston (2003) *J. Allergy Clin. Immunol.* **112**:653.
- Barreda, D.R. *et al.* (2004) *Dev. Comp. Immunol.* **28**:509.
- Eksioglu, E.A. *et al.* (2007) *Exp. Hematol.* **35**:1163.
- Cao, Y. (2007) *J. Clin. Invest.* **117**:2362.
- Fleetwood, A.J. *et al.* (2005) *Crit. Rev. Immunol.* **25**:405.
- Heuser, M. *et al.* (2007) *Semin. Hematol.* **44**:148.
- Hege, K.M. *et al.* (2006) *Int. Rev. Immunol.* **25**:321.
- Kaushansky, K. *et al.* (1992) *Biochemistry* **31**:1881.
- Diederichs, K. *et al.* (1991) *Science* **254**:1779.
- Smith, L.R. *et al.* (1994) *Immunogenetics* **39**:80.
- Onetto-Pothier, N. *et al.* (1990) *Blood* **75**:59.
- Hayashida, K. *et al.* (1990) *Proc. Natl. Acad. Sci.* **87**:9655.
- Pelley, J.L. *et al.* (2007) *Exp. Hematol.* **35**:1483.
- Oaks, M.K. *et al.* (1995) *J. Interferon Cytokine Res.* **15**:1095.
- Vandenabeele, P. *et al.* (1990) *Lymphokine Res.* **9**:381.

**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.