

DESCRIPTION

Species Reactivity	Rat
Specificity	Detects rat GM-CSF in ELISAs and Western blots. In sandwich immunoassays, less than 0.1% cross-reactivity with recombinant porcine GM-CSF, recombinant mouse GM-CSF, and recombinant human GM-CSF is observed.
Source	Polyclonal Goat IgG
Purification	Antigen Affinity-purified
Immunogen	<i>E. coli</i> -derived recombinant rat GM-CSF (R&D Systems, Catalog # 518-GM) Ala1-Lys127 Accession # P48750
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with BSA as a carrier protein. See Certificate of Analysis for details.

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
Western Blot	0.1 µg/mL	Recombinant Rat GM-CSF (Catalog # 518-GM)
Rat GM-CSF Sandwich Immunoassay		Reagent
ELISA Capture	2-8 µg/mL	Rat GM-CSF Antibody (Catalog # MAB518)
ELISA Detection	0.1-0.4 µg/mL	Rat GM-CSF Biotinylated Antibody (Catalog # BAF518)
Standard		Recombinant Rat GM-CSF (Catalog # 518-GM)

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.2 mg/mL in sterile PBS.
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. ● 6 months, -20 to -70 °C under sterile conditions after reconstitution.

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 α -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 α /CD116 and the signal transducing common β 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 α (13). Rat GM-CSF is active on mouse cells, although mouse GM-CSF is only weakly active on rat cells (14, 15).

References:

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