

DESCRIPTION	
Species Reactivity	Rat
Specificity	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.
Source	Monoclonal Mouse IgG _{2B} Clone # 83308
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	<i>E. coli</i> -derived recombinant rat GM-CSF Ala1-Lys127 Accession # P48750
Endotoxin Level	<0.10 EU per 1 µg of the antibody by the LAL method.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied as a 0.2 µm filtered solution in PBS.

APPLICATIONS	
Please Note: Optimal dilutions should be determined by each laboratory for each application. <i>General Protocols</i> are available in the <i>Technical Information</i> section on our website.	
	Recommended Concentration Sample
Western Blot	1 µg/mL Recombinant Rat GM-CSF (Catalog # 518-GM) under non-reducing conditions only. Catalog # AF518 is recommended to detect rat GM-CSF in Western blots.
Immunocytochemistry	8-25 µg/mL See Below
Intracellular Staining by Flow Cytometry	2.5 µg/10 ⁶ cells Rat splenocytes fixed with paraformaldehyde and permeabilized with saponin
CyTOF-ready	Ready to be labeled using established conjugation methods. No BSA or other carrier proteins that could interfere with conjugation.
Neutralization	Measured by its ability to neutralize GM-CSF-induced proliferation in the DA3 mouse myeloma cell line. Ihle, J. N. <i>et al.</i> (1984) <i>Advances in Viral Oncology</i> . In G. Klein (eds): Raven Press, New York, NY. 4:95. The Neutralization Dose (ND ₅₀) is typically 1-4 µg/mL in the presence of 0.5 ng/mL Recombinant Rat GM-CSF.

DATA	
<p>Neutralization</p>	<p>Cell Proliferation Induced by GM-CSF and Neutralization by Rat GM-CSF Antibody. Recombinant Rat GM-CSF (Catalog # 518-GM) stimulates proliferation in the DA3 mouse myeloma cell line in a dose-dependent manner (orange line). Proliferation elicited by Recombinant Rat GM-CSF (0.5 ng/mL) is neutralized (green line) by increasing concentrations of Rat GM-CSF Monoclonal Antibody (Catalog # MAB5181). The ND₅₀ is typically 1-4 µg/mL.</p>
<p>Immunocytochemistry</p>	<p>GM-CSF in Rat Splenocytes. GM-CSF was detected in immersion fixed rat splenocytes using Rat GM-CSF Monoclonal Antibody (Catalog # MAB5181) at 25 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Mouse IgG Secondary Antibody (red; Catalog # NL007) and counterstained with DAPI (blue). Specific staining was localized to cytoplasm. View our protocol for Fluorescent ICC Staining of Non-adherent Cells.</p>

PREPARATION AND STORAGE	
Reconstitution	Reconstitute at 0.5 mg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <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:

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