Mouse GM-CSF Rα Antibody

Monoclonal Rat IgG_{2A} Clone # 698423

Catalog Number: MAB6130

DESCRIPTION

Species Reactivity	Mouse
Specificity	Detects mouse GM-CSF Rα in direct ELISAs. In direct ELISAs, no cross-reactivity with recombinant human (rh) GM-CSF R alpha or rhGM-CSF R beta is observed.
Source	Monoclonal Rat IgG_{2A} Clone # 698423
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Mouse myeloma cell line NS0-derived recombinant mouse GM-CSF Rα Leu30-Pro327 Accession # Q00941
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.

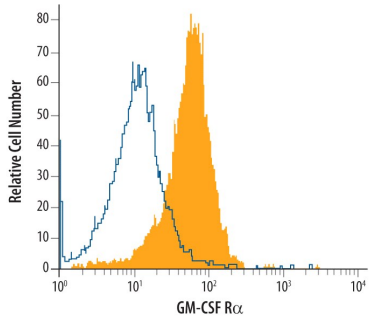
APPLICATIONS

Please Note: *Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.*

	Recommended Concentration	Sample
Flow Cytometry	2.5 µg/10^6 cells	See Below
Immunocytochemistry	8-25 µg/mL	See Below
Neutralization	Measured by its ability to neutralize GM–CSF-induced proliferation in the DA3 mouse myeloma cell line. Ihle, J. N. *et al.* (1984) Advances in Viral Oncology. In G. Klein (eds): Raven Press, New York, NY. **4**:95. The Neutralization Dose (ND_{50}) is typically 0.02-0.12 µg/mL in the presence of 0.1 ng/mL Recombinant Mouse GM–CSF.	

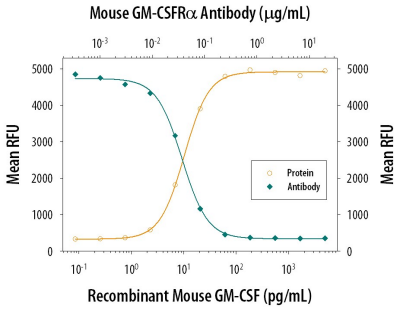
DATA

Flow Cytometry



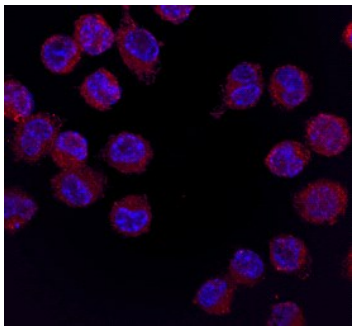
Detection of GM-CSF Rα in J774A.1 Mouse Cell Line by Flow Cytometry. J774A.1 mouse reticulum cell sarcoma macrophage cell line was stained with Rat Anti-Mouse GM-CSF Rα Monoclonal Antibody (Catalog # MAB6130, filled histogram) or isotype control antibody (Catalog # MAB006, open histogram), followed by Allophycocyanin-conjugated Anti-Rat IgG Secondary Antibody (Catalog # F0113).

Neutralization



Cell Proliferation Induced by GM-CSF and Neutralization by Mouse GM-CSF Rα Antibody. Recombinant Mouse GM-CSF (Catalog # 415-ML) stimulates proliferation in the DA3 mouse myeloma cell line in a dose-dependent manner (orange line). Proliferation elicited by Recombinant Mouse GM-CSF (0.1 ng/mL) is neutralized (green line) by increasing concentrations of Rat Anti-Mouse GM-CSF Rα Monoclonal Antibody (Catalog # MAB6130). The ND_{50} is typically 0.02-0.12 µg/mL.

Immunocytochemistry



GM-CSF Rα in J774A.1 Mouse Cell Line. GM-CSF Rα was detected in immersion fixed J774A.1 mouse reticulum cell sarcoma macrophage cell line using Rat Anti-Mouse GM-CSF Rα Monoclonal Antibody (Catalog # MAB6130) at 10 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Rat IgG Secondary Antibody (red, upper panel; Catalog # NL013) and counterstained with DAPI (blue, lower panel). Specific staining was localized to cell surfaces and cytoplasm. View our protocol for Fluorescent ICC Staining of Cells on Coverslips.

PREPARATION AND STORAGE

Reconstitution	Sterile PBS to a final concentration of 0.5 mg/mL.
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.** ● 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.

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BACKGROUND

Granulocyte macrophage colony stimulating factor receptor alpha (GM-CSF Rα), 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 mouse GM-CSF Rα 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 21 aa transmembrane segment, and a 40 aa cytoplasmic domain (5). Within the ECD, mouse GM-CSF Rα shares approximately 33% and 58% aa sequence identity with human and rat GM-CSF Rα, respectively. Soluble forms of the human receptor retain the ability to bind GM-CSF (6, 7). GM-CSF Rα 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 Rα 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 Rα 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:

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