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 either lyophilized or as a 0.2 µm filtered solution in PBS.

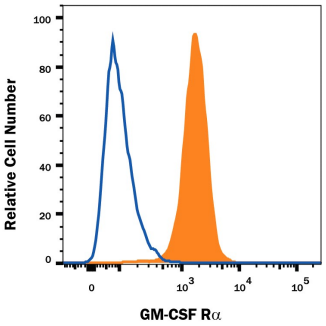
APPLICATIONS

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	0.25 µg/10^6 cells	See Below
Immunocytochemistry	8-25 µg/mL	See Below
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. *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.	

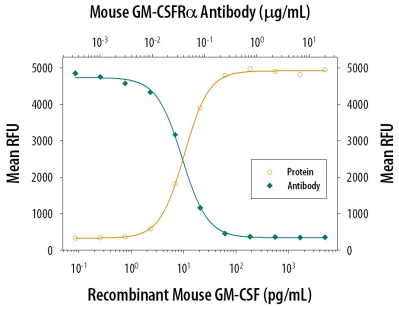
DATA

Flow Cytometry



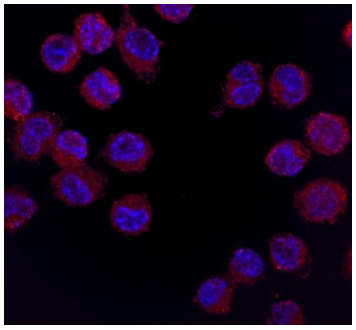
Detection of GM-CSF Rα in J774A.1 Mouse Cell Line by Flow Cytometry. J774A.1 mouse reticulum cell sarcoma macrophage cell line was stained with Rat Anti-Mouse GM-CSF Rα Monoclonal Antibody (Catalog # MAB6130, filled histogram) or isotype control antibody (Catalog # MAB006, open histogram), followed by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

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Mouse GM-CSF Rα Antibody

Monoclonal Rat IgG_{2A} Clone # 698423

Catalog Number: MAB6130

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.

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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