

DESCRIPTION

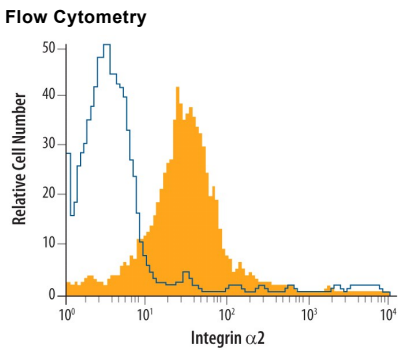
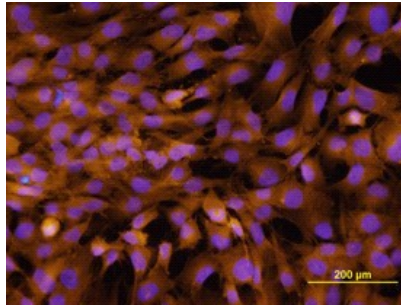
Species Reactivity	Human
Specificity	Detects human Integrin $\alpha 2$ /CD49b.
Source	Monoclonal Rat IgG _{2A} Clone # 430903
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Chinese hamster ovary cell line CHO-derived recombinant human Integrin $\alpha 2$ /CD49b Tyr30-Thr1132 Accession # P17301
Formulation	Lyophilized from a 0.2 μ m 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 μ m 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 μ g/10 ⁶ cells	See Below
Immunocytochemistry	8-25 μ g/mL	See Below
CyTOF-ready	Ready to be labeled using established conjugation methods. No BSA or other carrier proteins that could interfere with conjugation.	

DATA

Flow Cytometry	Immunocytochemistry
 <p>Detection of Integrin $\alpha 2$/CD49b in MG63 Human Cell Line by Flow Cytometry. MG63 human osteosarcoma cell line was stained with Rat Anti-Human Integrin $\alpha 2$/CD49b Monoclonal Antibody (Catalog # MAB12332, filled histogram) or isotype control antibody (Catalog # MAB006, open histogram), followed by Allophycocyanin-conjugated Anti-Rat IgG F(ab')₂ Secondary Antibody (Catalog # F0113).</p>	 <p>Integrin $\alpha 2$/CD49b in MG-63 Human Cell Line. Integrin $\alpha 2$/CD49b was detected in immersion fixed MG-63 human osteosarcoma cell line using Rat Anti-Human Integrin $\alpha 2$/CD49b Monoclonal Antibody (Catalog # MAB12332) at 10 μg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Rat IgG Secondary Antibody (yellow; Catalog # NL013) and counterstained with DAPI (blue). View our protocol for <i>Fluorescent ICC Staining of Cells on Coverslips</i>.</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

Integrin α 2 is one of twelve integrin family α subunits that share the β 1 subunit (1-3). Integrin α 2 β 1 is the non-covalent heterodimer of 160 kDa α 2 (CD49b) and 130 kDa β 1 (CD29) type I transmembrane glycoprotein subunits and is one of six very late antigens on activated T cells, designated VLA2 (3). The α 2 extracellular domain (ECD) contains an I (inserted) domain which includes the ligand binding site (2, 3). The β 1 ECD contains a vWFA domain, which participates in binding. Each subunit then has a transmembrane sequence and a short cytoplasmic tail. The dimer is folded when it is least active. Divalent cations and intracellular (inside-out) signaling convert it to its most active, extended and open conformation (1, 2). The 1102 amino acid (aa) human α 2 extracellular domain (ECD) shares 83-89% aa sequence identity with mouse, rat, canine, bovine and equine α 2. The I domain-containing β 1 integrins (α 1 β 1, α 2 β 1, α 10 β 1 and α 11 β 1) all bind collagens, with α 2 β 1 preferring collagens I-III (4, 5). Platelet α 2 β 1, also called GPIa, cooperates with another adhesion protein, GPVI, to coordinate platelet collagen binding and activation (3, 6, 7). Other α 2 β 1 ligands include laminin, decorin, E-cadherin, and collagen-like regions of collectin molecules such as C1q (4). Adhesion is synergized by crosstalk with syndecan-1 or HGF R/c-Met, and antagonized by crosstalk with Integrin α 1 β 1 (8-10). In addition to expression on selected hematopoietic cells, α 2 β 1 is present on a wide variety of non-hematopoietic cells (4). Mice deficient in the α 2 subunit have defects in innate immune responses, wound mast cell infiltration and angiogenesis, and platelet responses to collagen (6, 11, 12). In innate immunity, α 2 β 1 binding to C1q initiates the complement cascade and costimulates mast cell activation, triggering neutrophil influx (4, 12).

References:

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