

#### DESCRIPTION

<b>Species Reactivity</b>	Human
<b>Specificity</b>	Detects human Integrin $\alpha$ 2/CD49b.
<b>Source</b>	Monoclonal Rat IgG <sub>2A</sub> Clone # 430903
<b>Purification</b>	Protein A or G purified from hybridoma culture supernatant
<b>Immunogen</b>	Chinese hamster ovary cell line CHO-derived recombinant human Integrin $\alpha$ 2/CD49b Tyr30-Thr1132 Accession # P17301
<b>Conjugate</b>	Alexa Fluor 647 Excitation Wavelength: 650 nm Emission Wavelength: 668 nm
<b>Formulation</b>	Supplied 0.2 mg/mL in a saline solution containing BSA and Sodium Azide. See Certificate of Analysis for details.  *Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions.

#### 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
<b>Flow Cytometry</b>	0.25-1 µg/10 <sup>6</sup> cells	MG63 human osteosarcoma cell line

#### PREPARATION AND STORAGE

<b>Shipping</b>	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.
<b>Stability &amp; Storage</b>	<b>Protect from light. Do not freeze.</b> <ul style="list-style-type: none"> <li>12 months from date of receipt, 2 to 8 °C as supplied.</li> </ul>

#### BACKGROUND

Integrin  $\alpha$ 2 is one of twelve integrin family  $\alpha$  subunits that share the  $\beta$ 1 subunit (1-3). Integrin  $\alpha$ 2 $\beta$ 1 is the non-covalent heterodimer of 160 kDa  $\alpha$ 2 (CD49b) and 130 kDa  $\beta$ 1 (CD29) type I transmembrane glycoprotein subunits and is one of six very late antigens on activated T cells, designated VLA2 (3). The  $\alpha$ 2 extracellular domain (ECD) contains an I (inserted) domain which includes the ligand binding site (2, 3). The  $\beta$ 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  $\alpha$ 2 extracellular domain (ECD) shares 83-89% aa sequence identity with mouse, rat, canine, bovine and equine  $\alpha$ 2. The I domain-containing  $\beta$ 1 integrins ( $\alpha$ 1 $\beta$ 1,  $\alpha$ 2 $\beta$ 1,  $\alpha$ 10 $\beta$ 1 and  $\alpha$ 11 $\beta$ 1) all bind collagens, with  $\alpha$ 2 $\beta$ 1 preferring collagens I-III (4, 5). Platelet  $\alpha$ 2 $\beta$ 1, also called GPIa, cooperates with another adhesion protein, GPVI, to coordinate platelet collagen binding and activation (3, 6, 7). Other  $\alpha$ 2 $\beta$ 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  $\alpha$ 1 $\beta$ 1 (8-10). In addition to expression on selected hematopoietic cells,  $\alpha$ 2 $\beta$ 1 is present on a wide variety of non-hematopoietic cells (4). Mice deficient in the  $\alpha$ 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,  $\alpha$ 2 $\beta$ 1 binding to C1q initiates the complement cascade and costimulates mast cell activation, triggering neutrophil influx (4, 12).

#### References:

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3. Takada, Y. and M.E. Hemler (1989) *J. Cell Biol.* **109**:397.
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6. Sarratt, K.L. *et al.* (2005) *Blood* **106**:1268.
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12. Edelson, B.T. *et al.* (2006) *Blood* **107**:143.

# Human Integrin $\alpha 2/CD49b$ Alexa Fluor® 647-conjugated Antibody

Monoclonal Rat IgG<sub>2A</sub> Clone # 430903

Catalog Number: FAB12332R  
100 µg

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