

FITC Anti-Mouse/Rat CD29 Antibody

Catalog Number:	207103, 207104
Size:	25 tests, 100 tests
Target Name:	CD29, Integrin β 1 chain, VLA- β chain, gpIIa, ITGB1
Regulatory Status:	RUO

PRODUCT DETAILS

Clone:	HM β 1-1
Application:	Flow Cytometry
Reactivity:	Mouse
Format:	FITC
Isotype:	Armenian Hamster IgG
Antibody Type:	Monoclonal
Formulation:	Phosphate-buffered solution, pH 7.2, containing 0.09% sodium azide and 0.2% (w/v) BSA
Protein Concentration:	Supplied at a lot-specific concentration.
Storage&Handling:	The antibody solution should be stored undiluted between 2°C and 8°C, and protected from prolonged exposure to light. Do not freeze.
Recommended Usage:	For flow cytometric staining, it is recommended to use 5 μ L of this reagent per 0.5-1.0 million cells in a 100 μ L volume. Optimal reagent performance should be determined by titration for each specific application. FITC has an excitation max at 493 nm and an emission max at 525 nm.
Excitation Laser:	Blue Laser (488 nm) Green/Yellow laser (532/561nm)
Isotype Control:	300511

BACKGROUND INFORMATION

CD29, also known as integrin β 1 (ITGB1), is a ubiquitously expressed transmembrane adhesion receptor that forms the β 1 subunit of at least 12 different integrin heterodimers through pairing with distinct α integrin subunits (including α 1- α 11 and α V). These heterodimers mediate cell adhesion to the extracellular matrix (ECM) and neighboring cells, regulating processes such as cell migration, proliferation, survival, differentiation, and tissue organization. CD29 is expressed on nearly all cell types, including leukocytes, epithelial cells, endothelial cells, fibroblasts, and stem cells, where it serves as a key mediator of tissue homeostasis and immune cell trafficking.

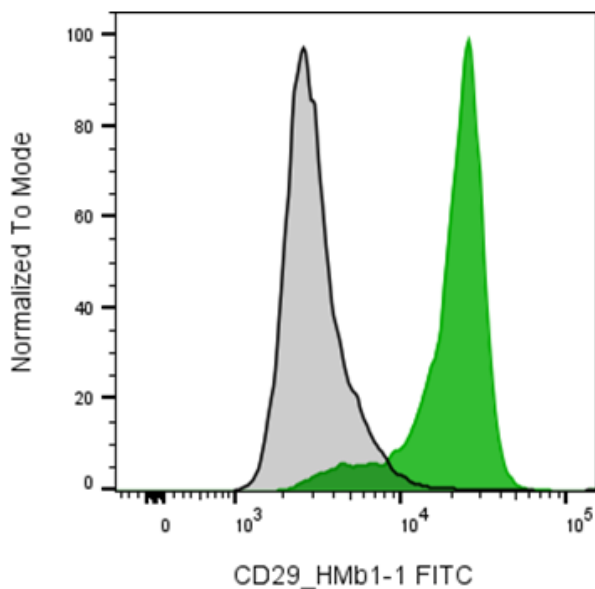
Structurally, CD29 is a type I transmembrane glycoprotein composed of a large extracellular domain, a single transmembrane helix, and a short cytoplasmic tail. The extracellular domain undergoes conformational changes that switch the receptor between inactive and high-affinity states, while the cytoplasmic tail interacts with adaptor proteins such as talin and kindlin to connect integrins to the actin cytoskeleton. CD29-containing integrins bind numerous extracellular ligands, including fibronectin, collagen, laminin, vitronectin, thrombospondin, and vascular cell adhesion molecule-1 (VCAM-1), depending on the associated α subunit. These

interactions enable bidirectional signaling, whereby extracellular ligand binding influences intracellular signaling ("outside-in" signaling) and intracellular signals regulate ligand affinity ("inside-out" signaling).

Dysregulation of CD29 contributes to numerous diseases. Increased $\beta 1$ integrin signaling promotes tumor growth, invasion, metastasis, resistance to chemotherapy, and survival of cancer stem cells. CD29 also plays important roles in fibrosis, chronic inflammation, autoimmune diseases, cardiovascular disease, and wound healing. In immune cells, $\beta 1$ integrins regulate leukocyte adhesion and migration into inflamed tissues, making them important mediators of inflammatory responses.

Because of its central role in cell adhesion and signaling, CD29 has emerged as an important therapeutic target. Inhibitors of $\beta 1$ integrins, blocking antibodies, peptides, and small molecules are being investigated to suppress tumor progression, reduce fibrosis, and limit inflammatory cell recruitment. Conversely, CD29 is widely used as a marker for mesenchymal stem cells and activated lymphocytes, and modulation of $\beta 1$ integrin signaling is being explored to improve stem cell engraftment, tissue regeneration, and adoptive cell therapies such as CAR-T cell treatment.

PRODUCT DATA



C57BL/6Mouse bone marrow cells were stained with FITC Anti-Mouse/Rat CD29 clone HM β 1-1 (color-filled histogram) or an isotype control (gray histogram).

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