ARG22982
anti-CD29 / Integrin beta 1 antibody [12G10]

Package: 100 µg
Store at: -20°C

Summary

Product Description	Mouse Monoclonal antibody [12G10] recognizes CD29 / Integrin beta 1 Mouse anti Human CD29 monoclonal antibody, clone 12G10 recognizes human CD29 also known as beta1 integrin or VLA-4 subunit alpha. CD29 is a ~130 kDa under reducing, ~115 kDa under non-reducing conditions single pass type I transmembrane glycoprotein. CD29 acts as the common beta subunit of the heterodimeric very late antigens 1-6, complexing with CD49a-f respectively where it forms part of the receptors for laminin , collagen and fibronectin. the VLA heterodimers ediate cell-cell and cell-matrix interactions.Mouse anti human CD29, clone 12G10 binding to cells adhering via VLA-4 results in actin cytoskeletal disruption and subsequent inhibition of attachment and spreading whilst 12G10 binding to cells adhering via VLA-5 results in enhancement of both these processes (Humphries et al. 2005). Clone 12G10 enhances alpha 5 beta 1-fibronectin interactions and binds to a region of CD25 containing the binding epitopes of several other anti CD29 antibody clones. However, unlike these, binding of 12G10 is enhanced in the presence of ligands such as fibronectin fragments (Mould et al. 1995). Binding of antibody clone 12G10 to the integrin β1 subunit is affected by divalent cations and the binding epitiope appears to be located around residues 207-218 in the b1 subunit putative A-domain (Mould et al. 1998)
Tested Reactivity	Hu
Species Does Not React With	Ms, Rat
Tested Application	ELISA, EM, FACS, ICC/IF, IHC-Fr, IP, WB
Specificity	The clone 12G10 binds to the CD29 / Integrin beta 1 βI domain then activates and stabilize the open headpiece conformation (active CD29 / Integrin beta 1).
Host	Mouse
Clonality	Monoclonal
Clone	12G10
Isotype	IgG1
Target Name	CD29 / Integrin beta 1
Species	Human
Immunogen	Purified Human beta1 integrin preparation from HT1080 fibrosarcoma cell extract.
Conjugation	Un-conjugated
Alternate Names	CD29; Glycoprotein IIa; Fibronectin receptor subunit beta; VLAB; MSK12; CD antigen CD29; FNRB; GPIIA; VLA-4 subunit beta; VLA-BETA; MDF2; Integrin beta-1

Application Instructions

Application table

Application	Dilution
ELISA	10 µg/ml
EM	Assay-dependent
FACS	1:25 - 1:50
ICC/IF	1:25-1:500
IHC-Fr	1:25-1:500

	IP	1:25-1:500
	WB	1:100-1:2000 (under non-reduced conditions only)
Application Note	* The dilutions indicate recommended starting dilutions and the optimal dilutions or concentrations should be determined by the scientist.	

Properties

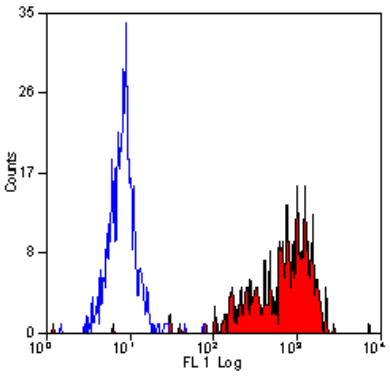
Form	Liquid
Purification	Purification with Protein G.
Buffer	PBS and 0.09% Sodium azide
Preservative	0.09% Sodium azide
Concentration	1 mg/ml
Storage instruction	For continuous use, store undiluted antibody at 2-8°C for up to a week. For long-term storage, aliquot and store at -20°C or below. Storage in frost free freezers is not recommended. Avoid repeated freeze/thaw cycles. Suggest spin the vial prior to opening. The antibody solution should be gently mixed before use.
Note	For laboratory research only, not for drug, diagnostic or other use.

Bioinformation

Gene Symbol	ITGB1
Gene Full Name	integrin, beta 1 (fibronectin receptor, beta polypeptide, antigen CD29 includes MDF2, MSK12)
Background	Integrins are heterodimeric proteins made up of alpha and beta subunits. At least 18 alpha and 8 beta subunits have been described in mammals. Integrin family members are membrane receptors involved in cell adhesion and recognition in a variety of processes including embryogenesis, hemostasis, tissue repair, immune response and metastatic diffusion of tumor cells. This gene encodes a beta subunit. Multiple alternatively spliced transcript variants which encode different protein isoforms have been found for this gene. [provided by RefSeq, Jul 2008]
Function	Integrins alpha-1/beta-1, alpha-2/beta-1, alpha-10/beta-1 and alpha-11/beta-1 are receptors for collagen. Integrins alpha-1/beta-1 and alpha-2/beta-2 recognize the proline-hydroxylated sequence G-F-P-G-E-R in collagen. Integrins alpha-2/beta-1, alpha-3/beta-1, alpha-4/beta-1, alpha-5/beta-1, alpha-8/beta-1, alpha-10/beta-1, alpha-11/beta-1 and alpha-V/beta-1 are receptors for fibronectin. Alpha-4/beta-1 recognizes one or more domains within the alternatively spliced CS-1 and CS-5 regions of fibronectin. Integrin alpha-5/beta-1 is a receptor for fibrinogen. Integrin alpha-1/beta-1, alpha-2/beta-1, alpha-6/beta-1 and alpha-7/beta-1 are receptors for lamimin. Integrin alpha-4/beta-1 is a receptor for VCAM1. It recognizes the sequence Q-I-D-S in VCAM1. Integrin alpha-9/beta-1 is a receptor for VCAM1, cytotactin and osteopontin. It recognizes the sequence A-E-I-D-G-I-E-L in cytotactin. Integrin alpha-3/beta-1 is a receptor for epiligrin, thrombospondin and CSPG4. Alpha-3/beta-1 may mediate with LGALS3 the stimulation by CSPG4 of endothelial cells migration. Integrin alpha-V/beta-1 is a receptor for vitronectin. Beta-1 integrins recognize the sequence R-G-D in a wide array of ligands. Isoform 2 interferes with isoform 1 resulting in a dominant negative effect on cell adhesion and migration (in vitro). In case of HIV-1 infection, the interaction with extracellular viral Tat protein seems to enhance angiogenesis in Kaposi's sarcoma lesions. When associated with alpha-7/beta-1 integrin, regulates cell adhesion and laminin matrix deposition. Involved in promoting endothelial cell motility and angiogenesis. Involved in osteoblast compaction through the fibronectin fibrillogenesis cell-mediated matrix assembly process and the formation of mineralized bone nodules. May be involved in up-regulation of the activity of kinases such as PKC via binding to KRT1. Together with KRT1 and GNB2L1/RACK1, serves as a platform for SRC activation or inactivation. Plays a mechanistic adhesive role during telophase, required for the successful completion of cytokinesis. Integrin alpha-3/beta-1 provides a docking site for FAP (seprase) at invadopodia plasma membranes in a collagen-dependent manner and hence may participate in the adhesion, formation of invadopodia and matrix degradation processes, promoting cell invasion. Isoform 5: Isoform 5 displaces isoform 1 in striated muscles. [UniProt]

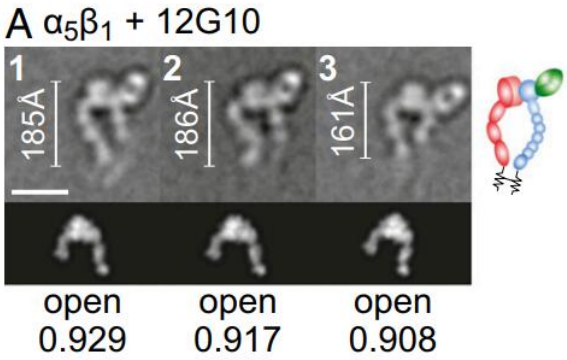
Highlight	Related products: CD29 antibodies; Anti-Mouse IgG secondary antibodies;
Calculated Mw	88 kDa
PTM	The cysteine residues are involved in intrachain disulfide bonds.

Images



ARG22982 anti-CD29 / Integrin beta 1 antibody [12G10] FACS image

Flow Cytometry: Human peripheral blood monocytes stained with ARG22982 anti-CD29 / Integrin beta 1 antibody [12G10].



ARG22982 anti-CD29 / Integrin beta 1 antibody [12G10] EM image

Electron Microscopy: The EM data was stained by clone 12G10 (CD29 / Integrin beta 1). The data indicates the clone 12G10 binds to the CD29 / Integrin beta 1 βI domain then activates and stabilizes the open headpiece conformation (active form of CD29 / Integrin beta 1). Data from Su Y et.al., Relating conformation to function in integrin α 5 β 1, PNAS, 2016 (PMID: 27317747)