abcam

ab91051

PE Anti-Integrin alpha 4/CD49D antibody [ALC1/1]

Anti-Integrin alpha 4/CD49D antibody [ALC1/1] conjugated to PE - suitable for flow cytometry, and reacts with human samples. Clone [ALC1/1] is a mouse monoclonal antibody.

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Key facts

Isotype	IgG1
Host species	Mouse
Conjugation	PE
Excitation/Emission	Ex: 480;565nm, Em: 578nm
Storage buffer	pH: 7.2 Preservative: 0.09% Sodium azide Constituents: 1% BSA
Form	Liquid
Clonality	Monoclonal
Clone number	ALC1/1
Purification technique	Affinity purification Immunogen

Reactivity data

Flow Cyt

Expected

Species	Human
Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information ITGA4

Function	Integrins alpha-4/beta-1 (VLA-4) and alpha-4/beta-7 are receptors for fibronectin. They recognize one or more domains within the alternatively spliced CS-1 and CS-5 regions of fibronectin. They are also receptors for VCAM1. Integrin alpha-4/beta-1 recognizes the sequence Q-I-D-S in VCAM1. Integrin alpha-4/beta-7 is also a receptor for MADCAM1. It recognizes the sequence L-D-T in MADCAM1. On activated endothelial cells integrin VLA-4 triggers homotypic aggregation for most VLA-4-positive leukocyte cell lines. It may also participate in cytolytic T-cell interactions with target cells. ITGA4:ITGB1 binds to fractalkine (CX3CL1) and may act as its coreceptor in CX3CR1-dependent fractalkine signaling (PubMed:23125415). ITGA4:ITGB1 binds to PLA2G2A via a site (site 2) which is distinct from the classical ligand-binding site (site 1) and this induces integrin conformational changes and enhanced ligand binding to site 1 (PubMed:18635536, PubMed:25398877). Integrin ITGA4:ITGB1 represses PRKCA-mediated L-type voltage-gated channel Ca(2+) influx and ROCK-mediated calcium sensitivity in vascular smooth muscle cells via its interaction with SVEP1, thereby inhibiting vasocontraction (PubMed:35802072).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	Integrin alpha 4 also known as CD49D or ITGA4 is a transmembrane receptor with a mass of approximately 150 kDa. This protein is expressed on the surface of leukocytes including T and B lymphocytes monocytes and eosinophils. Integrin alpha 4 functions by interacting mechanically with the extracellular matrix components and endothelial cell counter-receptors like VCAM-1 facilitating cell adhesion and migration. Its expression is vital for the immune cells' ability to move and locate sites of inflammation or injury.
Biological function summary	Integrin alpha 4 forms a heterodimer complex with beta subunits like beta 1 (forming VLA-4) or beta 7 allowing it to mediate adhesion and signaling pathways. In particular the alpha 4 and beta 1 dimerization gives rise to a high-affinity receptor for fibronectin and VCAM-1. This interaction is essential for regulating immune responses and maintaining cell positioning within tissues. The presence of this complex on leukocytes drives their ability to navigate through the vasculature to inflamed areas.

Pathways	Integrin alpha 4 participates in significant signal transduction pathways including the MAPK and PI3K-Akt pathways. These pathways modulate cell survival proliferation and migration. In the MAPK pathway integrin alpha 4 influences cell signaling cascades by interacting with other proteins like TALIN or PAXILLIN which are important for integrin-mediated signal relay. In connection with PI3K-Akt pathway alpha 4 integrins work closely with proteins in regulating cellular adhesion and motility showing a dynamic interplay in immune regulation.
Associated diseases and disorders	Integrin alpha 4 plays an important role in various immune-related diseases such as multiple sclerosis and Crohn's disease. The protein's participation in leukocyte adhesion and trafficking makes it a target for therapeutic intervention. Natalizumab a monoclonal antibody against alpha 4 integrin showcases the critical link between the protein and disease treatment by blocking leukocyte migration to reduce inflammation. Additionally integrin alpha 4's interaction with proteins like VCAM-1 and VLA-4 highlights its relevance in these autoimmune conditions highlighting its importance in disease pathophysiology.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

We do not recommend this combination. It is not covered by our product promise.

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