abcam

ab307649

Anti-Integrin alpha 4/CD49D antibody [EPR26133-5] - BSA and Azide free

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EPR26133-5
Purification technique	Affinity purification Protein A
Concentration	1.009 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt (Intra)

Tested

Species	Transfected cell line - Human
Dilution info	-

Notes	-

Expected

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

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	-
Notes	-

Not recommended

Species	Mouse, Transfected cell line - Human, Rat
Dilution info	-
Notes	-

IP

Not recommended

Species	Mouse, Human, Transfected cell line - Human, Rat
Dilution info	-
Notes	-

ICC/IF

Not recommended

Species	Mouse, Human, Transfected cell line - Human, Rat
Dilution info	-
Notes	-

IHC-P

Not recommended

Species	Rat, Mouse, Human, Transfected cell line - Human
Dilution info	-
Notes	-

WB

Not recommended

Species	Rat, Mouse, Human, Transfected cell line - Human
Dilution info	-
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

Notes

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Conjugation ready
Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility
This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

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

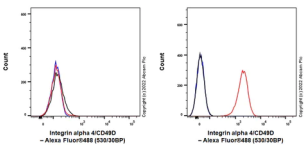
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

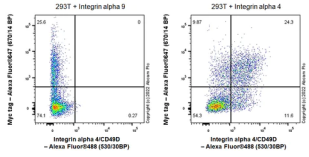
Full details and terms and conditions can be found here:
Terms & Conditions.

4 product images



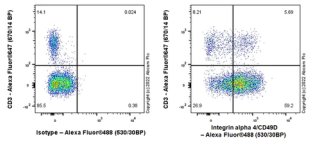
Flow Cytometry - Anti-Integrin alpha 4/CD49D antibody [EPR26133-5] - BSA and Azide free (ab307649)

This data was developed using ab307648, the same antibody clone in a different buffer formulation. Flow cytometric analysis of K-562 (human chronic myelogenous leukemia lymphoblast) (Left panel) / Jurkat (human T cell leukemia T lymphocyte) (Right panel) cells labeling Integrin alpha 4/CD49D with ab307648 at 1/500 dilution (0.1µg) (Red) compared with a Rabbit monoclonal IgG (ab172730) (Black) isotype control and an unlabeled control (cells without incubation with primary antibody and secondary antibody) (Blue). Goat Anti-Rabbit IgG (Alexa Fluor® 488, ab150081) at 1/2000 dilution was used as the secondary antibody. Gated on viable cells. Negative control: K-562 (PMID:16105875).



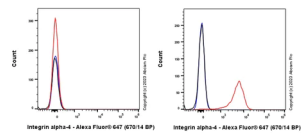
Flow Cytometry (Intracellular) - Anti-Integrin alpha 4/CD49D antibody [EPR26133-5] - BSA and Azide free (ab307649)

This data was developed using ab307648, the same antibody clone in a different buffer formulation. Flow cytometric analysis of 2% paraformaldehyde fixed 0.1% Tween-20 permeabilized HEK-293T (human embryonic kidney) cells transfected with a human Integrin alpha 9 expression vector containing a myc-his tag (Left panel) / HEK-293T transfected with a human Integrin alpha 4 expression vector containing a myc-his tag (Right panels) cells labeling Integrin alpha 4/CD49D with ab307648 at 1/500 dilution (0.1µg). A Goat Anti-Rabbit IgG (Alexa Fluor® 488, ab150081) at 1/2000 dilution was used as the secondary antibody. Cells were surface stained with ab307648, then fixed with 2% PFA followed by intracellular staining with Myc-tag conjugated to Alexa Fluor® 647.



Flow Cytometry - Anti-Integrin alpha 4/CD49D antibody [EPR26133-5] - BSA and Azide free (ab307649)

This data was developed using ab307648, the same antibody clone in a different buffer formulation. Flow cytometric analysis of human peripheral blood mononuclear cell (PBMC) cells (Right panel) compared with a Rabbit monoclonal IgG (ab172730) isotype control (Left panel) labeling Integrin alpha 4/CD49D with ab307648 at 1/500 dilution (0.1µg). Goat Anti-Rabbit IgG (Alexa Fluor® 488, ab150081) at 1/2000 dilution was used as the secondary antibody. Gated on viable cells. Cells were stained with rabbit IgG or ab307648. Then stained with anti-CD3 conjugated to Alexa Fluor® 647.



Flow Cytometry - Anti-Integrin alpha 4/CD49D antibody [EPR26133-5] - BSA and Azide free (ab307649)

This data was developed using ab307648, the same antibody clone in a different buffer formulation. Flow cytometric analysis of ITGA4 KO HAP1 (human chronic myelogenous leukemia near-haploid ITGA4 knockout HAP1 cell, Left) / Parental HAP1 (Right) cells labelling Integrin alpha 4/CD49D with ab307648 at 1/500 dilution (0.1ug) (Red) compared with a Rabbit monoclonal IgG (ab172730) (Black) isotype control and an unlabelled control (cells without incubation with

primary antibody and secondary antibody) (Blue). Goat anti-Rabbit IgG (Alexa Fluor® 647, ab150083) at 1/5000 dilution was used as the secondary antibody.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.