abcam

ab238667

Anti-Integrin alpha V beta 3 antibody [LM609] - BSA and Azide free

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	LM609
Purification technique	Affinity purification
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC

Tested

Species	Human
Dilution info	5 µg/mL
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	0.1-1 µg for 10^6 Cells
Notes	-

Target data

See full target information ITGB3

Function

Integrin alpha-V/beta-3 (ITGAV:ITGB3) is a receptor for cytotactin, fibronectin, laminin, matrix metalloproteinase-2, osteopontin, osteomodulin, prothrombin, thrombospondin, vitronectin and von Willebrand factor. Integrin alpha-IIb/beta-3 (ITGA2B:ITGB3) is a receptor for fibronectin, fibrinogen, plasminogen, prothrombin, thrombospondin and vitronectin. Integrins alpha-IIb/beta-3 and alpha-V/beta-3 recognize the sequence R-G-D in a wide array of ligands. Integrin alpha-IIb/beta-3 recognizes the sequence H-H-L-G-G-G-A-K-Q-A-G-D-V in fibrinogen gamma chain (By similarity). Following activation integrin alpha-IIb/beta-3 brings about platelet/platelet interaction through binding of soluble fibrinogen (PubMed:9111081). This step leads to rapid platelet aggregation which physically plugs ruptured endothelial surface. Fibrinogen binding enhances SELP expression in activated platelets (By similarity). ITGAV:ITGB3 binds to fractalkine (CX3CL1) and acts as its coreceptor in CX3CR1-dependent fractalkine signaling (PubMed:23125415, PubMed:24789099). ITGAV:ITGB3 binds to NRG1 (via EGF domain) and this binding is essential for NRG1-ERBB signaling (PubMed:20682778). ITGAV:ITGB3 binds to FGF1 and this binding is essential for FGF1 signaling (PubMed:18441324). ITGAV:ITGB3 binds to FGF2 and this binding is essential for FGF2 signaling (PubMed:28302677). ITGAV:ITGB3 binds to IGF1 and this binding is essential for IGF1 signaling (PubMed:19578119). ITGAV:ITGB3 binds to IGF2 and this binding is essential for IGF2 signaling (PubMed:28873464). ITGAV:ITGB3 binds to IL1B and this binding is essential for IL1B signaling (PubMed:29030430). ITGAV:ITGB3 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). ITGAV:ITGB3 acts as a receptor for fibrillin-1 (FBN1) and mediates R-G-D-dependent cell adhesion to FBN1 (PubMed:12807887). In brain, plays a role in synaptic transmission and plasticity. Involved in the regulation of the serotonin neurotransmission, is required to localize to specific compartments within the synapse the serotonin receptor SLC6A4 and for an appropriate reuptake of serotonin. Controls excitatory synaptic strength by regulating GRIA2-containing AMPAR endocytosis, which affects AMPAR abundance and composition (By similarity). ITGAV:ITGB3 act as a receptor for CD40LG (PubMed:31331973). ITGAV:ITGB3 acts as a receptor for IBSP and promotes cell adhesion and migration to IBSP (PubMed:10640428). Integrin ITGA2B:ITGB3 is also the receptor of the erythrocyte-specific ICAM4 ligand involved in heterotypic cell-cell adhesion between erythrocytes and activated platelets (PubMed:12477717). (Microbial infection) Integrin ITGAV:ITGB3 acts as a receptor for Herpes virus 8/HHV-8.

(Microbial infection) Integrin ITGAV:ITGB3 acts as a receptor for Coxsackievirus A9. (Microbial infection) Acts as a receptor for Hantaan virus. (Microbial infection) Integrin ITGAV:ITGB3 acts as a receptor for Cytomegalovirus/HHV-5. (Microbial infection) Integrin ITGA5:ITGB3 acts as a receptor for Human metapneumovirus. (Microbial infection) Integrin ITGAV:ITGB3 acts aP05556s a receptor for Human parechovirus 1. (Microbial infection) Integrin ITGAV:ITGB3 acts as a receptor for West nile virus. (Microbial infection) In case of HIV-1 infection, the interaction with extracellular viral Tat protein seems to enhance angiogenesis in Kaposi's sarcoma lesions.

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab238667 is the carrier-free version of ab190147.

Want a custom formulation?

This antibody clone is manufactured by Abcam. If you require a custom buffer formulation or conjugation for your experiments, please contact orders@abcam.com

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 V beta 3 also known as integrin αvβ3 or avb3 integrin is a transmembrane receptor with a molecular weight of about 140 kDa. This protein is

	composed of the alpha V (αv) and beta 3 (β3) subunits. Integrin αvβ3 is widely expressed in various cell types including endothelial cells osteoclasts and some tumor cells. Its function involves mechanical interaction with the extracellular matrix (ECM) allowing cells to adhere to ECM proteins such as vitronectin and fibronectin. This integrin plays an important role in cell adhesion migration and survival.
Biological function summary	Integrin alpha V beta 3 engages in various cellular processes by serving as a part of integrin complexes. It mediates signal transduction from the ECM to the cell interior influencing cellular responses such as shape changes survival and proliferation. The receptor regulates angiogenesis which is the formation of new blood vessels and osteoclast-mediated bone resorption. These functions are essential for tissue remodeling and repair. The integrin can also modulate immune responses by interacting with immune cells affecting inflammation and wound healing processes.
Pathways	Integrin alpha V beta 3 is an important component in signaling pathways such as the PI3K/AKT and MAPK pathways. These pathways facilitate the integrin's role in cell migration growth and survival. It interacts with proteins like focal adhesion kinase (FAK) and SRC kinase bridging signals from the ECM to intracellular signaling cascades. The integrin's ability to bind ligands and initiate these pathways makes it an important player in cellular responses to the extracellular environment influencing how cells align mechanically and biochemically.
Associated diseases and disorders	Integrin alpha V beta 3 has significant associations with cancer progression and osteoporosis. In various cancers including melanoma and breast cancer overexpression of this integrin supports tumor angiogenesis and metastasis connecting its role with angiogenic growth factors and matrix metalloproteinases. In osteoporosis it collaborates with proteins like osteopontin promoting osteoclast attachment to the bone matrix thereby influencing bone degradation. Understanding its role in these disorders highlights potential therapeutic targets for inhibiting unwanted angiogenesis and excessive bone resorption.

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

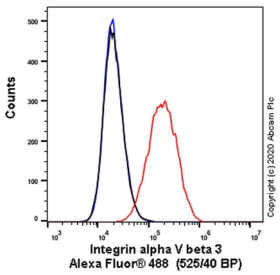
We do not recommend this combination. It is not covered by our product promise.

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.

3 product images



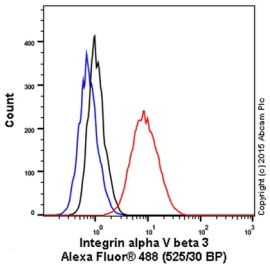
Flow Cytometry - Anti-Integrin alpha V beta 3 antibody [LM609] - BSA and Azide free (ab238667)

Integrin alpha V beta 3 Flow Cytometry staining using mouse Anti-Integrin alpha V beta 3 antibody

This data was developed using the same antibody clone in a different buffer formulation (ab238667)
Overlay histogram showing HUVEC cells stained with ab238667 (red line). The cells were incubated in 1x PBS containing 10 % normal goat serum to block non-specific protein-protein interaction followed by the antibody (ab238667) (1 µg/1x10^6 cells) for 30 min on ice. The secondary antibody Goat anti-mouse IgG H&L (Alexa Fluor® 488, pre-adsorbed) (ab150117) was used at 1/2000 for 30 min on ice.

Isotype control antibody (black line) was mouse IgG1κ (ab170190) used at the same concentration and conditions as the primary antibody. Unlabelled sample (blue line) was also used as a control.

Acquisition of >5,000 events were collected using a 50 mW Blue laser (488nm) and 525/40 bandpass filter.

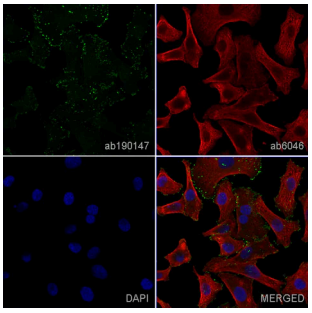


Flow Cytometry - Anti-Integrin alpha V beta 3 antibody [LM609] - BSA and Azide free (ab238667)

Integrin alpha V beta 3 Flow Cytometry staining using mouse Anti-Integrin alpha V beta 3 antibody

Overlay histogram showing HUVEC (Human umbilical vein endothelial cell line) cells stained with ab190147 (red line). The cells were fixed with 4% formaldehyde (10 minutes) and incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab190147, 1 µg/1x10^6 cells) for 30 minutes at 22°C. The secondary antibody used was Alexa Fluor® 488 goat anti-mouse IgG (H+L) (ab150113) at 1/4000 dilution for 30 minutes at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1] (ab91353, 1 µg/1x10^6 cells) used under the same conditions.
Acquisition of >5,000 events were collected using a 20mW Argon ion laser (488nm) and 525/30 bandpass filter.

This data was developed using the same antibody clone in a different formulation containing PBS, Azide and arginine (ab190147).



Immunocytochemistry - Anti-Integrin alpha V beta 3 antibody [LM609] - BSA and Azide free (ab238667)

Integrin alpha V beta 3 Immunocytochemistry staining using mouse Anti-Integrin alpha V beta 3 antibody

This data was developed using the same antibody clone in a different buffer formulation containing PBS and sodium azide (ab190147)
ab190147 staining Integrin Alpha V beta 3 in Malme-3M cells. The cells were fixed with 4% paraformaldehyde (10 min), permeabilized with 0.1% PBS-Tween for 5 minutes and then blocked with 1% BSA/10% normal goat serum/0.3M glycine in 0.1%PBS-Tween for 1h. The cells were then incubated overnight at 4°C with ab190147 at 5µg/ml and ab6046, Rabbit polyclonal to beta Tubulin - Loading Control. Cells were then incubated with ab150117, Goat polyclonal Secondary Antibody to Mouse IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 dilution (shown in green) and ab150080, Goat polyclonal Secondary Antibody to Rabbit IgG - H&L (Alexa Fluor® 594) at 1/1000 dilution (shown in pseudocolour red). Nuclear DNA was labelled with DAPI (shown in blue).

Image was acquired with a confocal microscope (Leica-Microsystems TCS SP8) and a single confocal section is shown.

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