abcam

ab78289

Anti-Integrin alpha V beta 3 antibody [27.1 (VNR-1)]

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	pH: 7.6 Preservative: 0.1% Sodium azide Constituents: PBS, 1.45% Sodium chloride
Form	Liquid
Clonality	Monoclonal
Clone number	27.1 (VNR-1)
Purity	Tissue culture supernatant
Purification notes	Purified from TCS.

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	-
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

IHC-P

Not recommended

Species	Human
Dilution info	-
Notes	-

Target data

See full target information ITGAV

Function

The alpha-V (ITGAV) integrins are receptors for vitronectin, cytotactin, fibronectin, fibrinogen, laminin, matrix metalloproteinase-2, osteopontin, osteomodulin, prothrombin, thrombospondin and vWF. They recognize the sequence R-G-D in a wide array of ligands. ITGAV:ITGB3 binds to fractalkine (CX3CL1) and may act as its coreceptor in CX3CR1-dependent fractalkine signaling (PubMed:23125415). 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 and ITGAV:ITGB6 act as receptors for fibrillin-1 (FBN1) and mediate R-G-D-dependent cell adhesion to FBN1 (PubMed:12807887, PubMed:17158881). Integrin alpha-V/beta-6 or alpha-V/beta-8 (ITGAV:ITGB6 or ITGAV:ITGB8) mediates R-G-D-dependent release of transforming growth factor beta-1 (TGF-beta-1) from regulatory Latency-associated peptide (LAP), thereby playing a key role in TGF-beta-1 activation (PubMed:15184403, PubMed:22278742, PubMed:28117447). ITGAV:ITGB3 acts 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). (Microbial infection) Integrin ITGAV:ITGB5 acts as a receptor for Adenovirus type C. (Microbial infection) Integrin ITGAV:ITGB5 and ITGAV:ITGB3 act as receptors for Coxsackievirus A9 and B1. (Microbial infection) Integrin ITGAV:ITGB3 acts as a receptor for Herpes virus 8/HHV-8. (Microbial infection) Integrin ITGAV:ITGB6 acts as a receptor for herpes simplex 1/HHV-1. (Microbial infection) Integrin ITGAV:ITGB3 acts as 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	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

This product was changed from ascites to tissue culture supernatant on 17 May 2019. Please note that the dilutions may need to be adjusted accordingly. If you have any questions, please do not hesitate to contact our scientific support team.

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

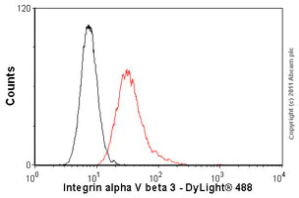
We do not recommend this combination. It is not covered by our product promise.

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Flow Cytometry - Anti-Integrin alpha V beta 3 antibody [27.1 (VNR-1)] (ab78289)

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

Overlay histogram showing A431 cells stained with ab78289 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab78289, 2µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1] (ab91353, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed. This image was generated using the ascites version of the product.

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