abcam

ab32577

Anti-Caveolin-1 antibody [E249] - Caveolae Marker

Anti-Caveolin-1 antibody [E249] - Caveolae Marker (ab32577) is a rabbit monoclonal antibody detecting Caveolin-1 in **Western Blot, Flow Cytometry, IHC-P, ICC/IF**. Suitable for **Human, Mouse, Rat**.

- KO validated for confirmed specificity
- Biophysical QC for unrivalled batch-batch consistency
- Over 20 publications
- Trusted since 2006

Lab Essentials | Recombinant | RabMAb | KO Validated | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	E249
Purification technique	Affinity purification Protein A
Specificity	This antibody should recognize both alpha and beta form of Caveolin-1.
Concentration	0.124 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Mouse
Dilution info	1/2000
Notes	Use 0.01M Sodium Citrate Buffer, pH 6.0. For unpurified use at 1:250. Perform heat-mediated antigen retrieval before commencing with IHC staining protocol.

Species	Rat
Dilution info	1/2000
Notes	Use 0.01M Sodium Citrate Buffer, pH 6.0. For unpurified use at 1:250. Perform heat-mediated antigen retrieval before commencing with IHC staining protocol.

Species	Human
Dilution info	1/2000
Notes	Use 0.01M Sodium Citrate Buffer, pH 6.0. For unpurified use at 1:250. Perform heat-mediated antigen retrieval before commencing with IHC staining protocol.

ICC/IF

Tested

Species	Human
Dilution info	1/50
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	1/20
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

WB

Tested

Species	Human
Dilution info	1/1000 - 1/10000
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information CAV1

Function	May act as a scaffolding protein within caveolar membranes (PubMed:11751885). Forms a stable heterooligomeric complex with CAV2 that targets to lipid rafts and drives caveolae formation. Mediates the recruitment of CAVIN proteins (CAVIN1/2/3/4) to the caveolae (PubMed:19262564). Interacts directly with G-protein alpha subunits and can functionally regulate their activity (By similarity). Involved in the costimulatory signal essential for T-cell receptor (TCR)-mediated T-cell activation. Its binding to DPP4 induces T-cell proliferation and NF-kappa-B activation in a T-cell receptor/CD3-dependent manner (PubMed:17287217). Recruits CTNNB1 to caveolar membranes and may regulate CTNNB1-mediated signaling through the Wnt pathway (By similarity). Negatively regulates TGFB1-mediated activation of SMAD2/3 by mediating the internalization of TGFBR1 from

membrane rafts leading to its subsequent degradation (PubMed:25893292). Binds 20(S)-hydroxycholesterol (20(S)-OHC) (By similarity).

Storage

Shipped at conditions	Conditional Ambient
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

What is this antibody validated in?
Anti-Caveolin-1 antibody [E249] - Caveolae Marker (ab32577) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Flow Cyt), Immunohistochemistry (IHC-P), Immunocytochemistry/immunofluorescence (ICC/IF) in Human, Mouse, Rat samples.

What is the molecular weight of Caveolin-1?
Anti-Caveolin-1 [E249] - Caveolae Marker (ab32577) specifically detects a band for Caveolin-1 (UniProt: Q03135) at a molecular weight of 20kDa.

Trusted by the scientific community
Anti-Caveolin-1 [E249] - Caveolae Marker (ab32577) was first used in a scientific publication in 2006 and has been cited over 20 times in peer-reviewed journals.

Specificity confirmed
The specificity of Anti-Caveolin-1 antibody [E249] - Caveolae Marker (ab32577) has been confirmed by Western blot testing in CAV1 Knockout HeLa cells.

Other related products
We have a range of other formats of antibody clone [E249] also available for your convenience: ab32577, Alexa Fluor® 488 - ab185043, Alexa Fluor® 647 - ab193892, HRP - ab193893, Carrier free - ab230262, APC - ab310857, PE - ab310925, Alexa Fluor® 594 - ab311728, Alexa Fluor® 568 - ab313005, Alexa Fluor® 555 - ab313209, Alexa Fluor® 750 - ab321611

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.

Trial sizes available!
Test your antibody or perform pre-screening before committing to a larger quantity. Sold in 20µl. Discover our selection of trial-size antibodies.

Supplementary info

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

Activity summary	Caveolin-1 also known as Cav-1 is an integral membrane protein with a molecular weight of approximately 22 kDa. It functions mechanically as a scaffolding protein in caveolae which are tiny invaginations in the plasma membrane of many cell types. These structures are particularly abundant in adipocytes endothelial cells and muscle cells. Caveolin-1 anchors itself to the cell membrane and plays a role in organizing and concentrating certain signaling molecules.
Biological function summary	Caveolae provide a platform for various signaling pathways and involve caveolin-1 as a major component. Caveolin-1 interacts with multiple signaling molecules such as G-protein coupled receptors and Src family kinases to modulate signal transduction. This protein forms part of a larger caveolar complex contributing to cellular processes including endocytosis and lipid regulation. Its presence as a marker in caveolae highlights its significance in cellular functions.
Pathways	Caveolin-1 influences the insulin signaling and nitric oxide (NO) signaling pathways. In the insulin signaling pathway caveolin-1 interacts with insulin receptors to modulate glucose uptake. It also associates with eNOS (endothelial nitric oxide synthase) in the NO signaling pathway impacting vascular function. These relationships highlight its role in cellular communication and regulatory mechanisms within the human body.
Associated diseases and disorders	Caveolin-1 is involved in cancer and cardiovascular diseases. In cancer altered expression of caveolin-1 contributes to tumor progression while in cardiovascular diseases it affects endothelial function through its interaction with eNOS. The connection of caveolin-1 to proteins like insulin receptors and eNOS reveals its critical influence in these conditions providing potential targets for therapeutic intervention.

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.

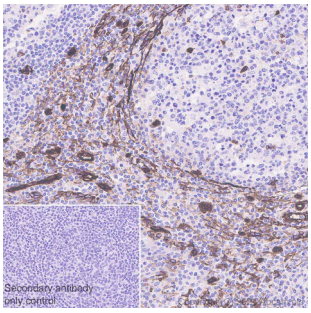
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

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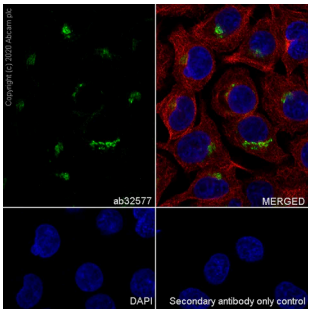
11 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Caveolin-1 antibody [E249] - Caveolae Marker (ab32577)

Caveolin-1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Caveolin-1 antibody

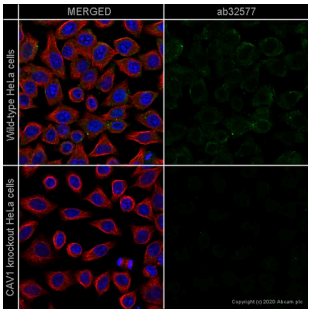
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human tonsil tissue sections labelling Caveolin-1 with purified ab32577 at 1/2000 dilution (0.06 µg/ml). Heat mediated antigen retrieval was performed using Heat mediated antigen retrieval using Bond™ Epitope Retrieval Solution 2 (pH 9.0) . Tissue was counterstained with Hematoxylin. Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) secondary antibody was used. PBS instead of the primary antibody was used as the negative control. The immunostaining was performed on a Leica Biosystems BOND® RX instrument.



Immunocytochemistry/ Immunofluorescence - Anti-Caveolin-1 antibody [E249] - Caveolae Marker (ab32577)

Caveolin-1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Caveolin-1 antibody

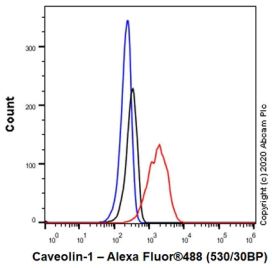
Immunocytochemistry analysis of Jurkat (Human lung carcinoma epithelial cell) cells labeling Caveolin-1 with purified ab32577 at 1/50 dilution (2.3 µg/mL). Cells were fixed in 4% Paraformaldehyde and permeabilized with 0.1% tritonX-100. Cells were counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1/200 (2.5 µg/mL). Goat anti rabbit IgG (Alexa Fluor® 488, ab150078) was used as the secondary antibody at 1/1000 (2 µg/mL) dilution. DAPI (blue) was used as nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.



Immunocytochemistry/ Immunofluorescence - Anti-Caveolin-1 antibody [E249] - Caveolae Marker (ab32577)

Caveolin-1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Caveolin-1 antibody

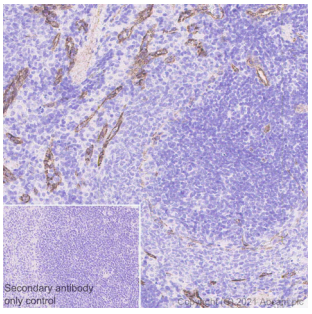
ab32577 staining Caveolin-1 in wild-type HeLa cells (top panel) and CAV1 knockout HeLa cells (ab255371) (bottom panel). The cells were fixed with 100% methanol (5 min) then permeabilized with 0.1% Triton X-100 for 5 minutes and then blocked with 1% BSA/10% normal goat serum/0.3M glycine in 0.1% PBS-Tween for 1h. The cells were then incubated with ab32577 at 1/200 dilution and ab7291 (Mouse monoclonal to alpha Tubulin) at 1/1000 dilution overnight at 4°C followed by a further incubation at room temperature for 1h with a goat secondary antibody to rabbit IgG (Alexa Fluor® 488) (ab150081) at 2 µg/ml (shown in green) and a goat secondary antibody to mouse IgG (Alexa Fluor® 594) (ab150120) at 2 µg/ml (shown in red). Nuclear DNA was labelled in blue with DAPI.
Image was taken with a confocal microscope (Leica-Microsystems TCS SP8).



Flow Cytometry - Anti-Caveolin-1 antibody [E249] - Caveolae Marker (ab32577)

Caveolin-1 Flow Cytometry staining using rabbit Anti-Caveolin-1 antibody

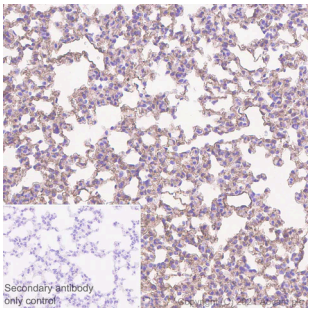
Flow cytometric analysis of 4% Paraformaldehyde fixed 90% Methanol permeabilized A431 (Human epidermoid carcinoma epithelial cell) cells labelling Caveolin-1 with ab32577 at 1/20 dilution (10 µg/ml) compared with a Rabbit monoclonal IgG (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). A Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) at 1/2000 was used as the secondary antibody.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Caveolin-1 antibody [E249] - Caveolae Marker (ab32577)

Caveolin-1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Caveolin-1 antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of rat spleen tissue sections labelling Caveolin-1 with purified ab32577 at 1/2000 dilution (0.06 µg/ml). Heat mediated antigen retrieval was performed using Heat mediated antigen retrieval using Bond™ Epitope Retrieval Solution 2 (pH 9.0) . Tissue was counterstained with Hematoxylin. Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) secondary antibody was used. PBS instead of the primary antibody was used as the negative control. The immunostaining was performed on a Leica Biosystems BOND® RX instrument.

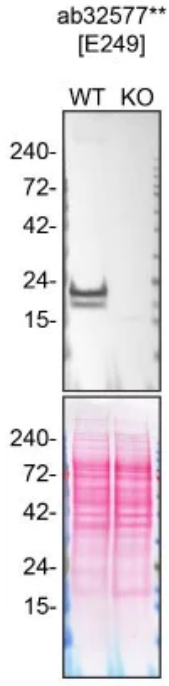


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Caveolin-1 antibody [E249] - Caveolae Marker (ab32577)

Caveolin-1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Caveolin-1 antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of mouse lung tissue sections labelling Caveolin-1 with purified ab32577 at 1/2000 dilution (0.06 µg/ml). Heat

mediated antigen retrieval was performed using Heat mediated antigen retrieval using Bond™ Epitope Retrieval Solution 2 (pH 9.0) . Tissue was counterstained with Hematoxylin. Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) secondary antibody was used. PBS instead of the primary antibody was used as the negative control. The immunostaining was performed on a Leica Biosystems BOND® RX instrument.



Western blot - Anti-Caveolin-1 antibody [E249] - Caveolae Marker (ab32577)

Caveolin-1 Western blot staining using rabbit Anti-Caveolin-1 antibody

ab32577 was shown to react with CAV1 in wild-type U-87 MG cells in Western blot with loss of signal observed in CAV1 knockout cell line ab306811. Wild-type U-87 MG and CAV1 knockout cell lysates were subjected to SDS-PAGE. Membranes were blocked in 5% milk in TBST for 1 hr before incubation with ab32577 overnight at 4 °C at a 1/1000 dilution. Blots were incubated with secondary antibodies at 0.2 µg/mL before imaging.

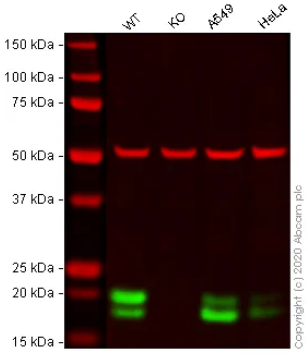
This data was provided by YCharOS Inc., an open science company with the mission of characterizing commercially available antibody reagents for all human proteins. Abcam and YCharOS are working together to help address the reproducibility crisis by enabling the life science community to better evaluate commercially available antibodies.
All lanes:
Western blot - Anti-Caveolin-1 antibody [E249] - Caveolae Marker (ab32577)

Lane 1:
Wild-type U-87 MG lysate at 20 µg

Lane 2:
CAV1 knock-out U-87 MG lysate at 20 µg

Lane 2:
Western blot - Human CAV1 knockout U-87 MG cell line (ab306811)

Observed band size: 20-22 kDa



Western blot - Anti-Caveolin-1 antibody [E249] - Caveolae Marker (ab32577)

Caveolin-1 Western blot staining using rabbit Anti-Caveolin-1 antibody

Lanes 1 - 4: Merged signal (red and green). Green - ab32577 observed at 20 kDa. Red - loading control, ab7291 (Mouse anti-Alpha Tubulin [DM1A] observed at 55kDa.
ab32577 was shown to react with Caveolin-1 in wild-type A431 cells in western blot. Loss of signal was observed when CAV1 knockout sample was used. A431 wild-type and CAV1 knockout cell lysates were subjected to SDS-PAGE. Membranes were blocked in 3% milk in TBS-T (0.1% Tween®) before incubation with ab32577 and ab7291 (Mouse anti-Alpha Tubulin [DM1A] overnight at 4°C at a 1 in 1000 dilution and a 1 in 20000 dilution respectively. Blots were incubated with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preabsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed (ab216776) secondary antibodies at 1 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-Caveolin-1 antibody [E249] - Caveolae Marker (ab32577) at 1/1000 dilution

Lane 1:
Wild-type A-431 (Human epidermoid carcinoma cell line) whole cell lysate at 20 µg

Lane 2:
CAV1 knockout A-431 (Human epidermoid carcinoma cell line) whole cell lysate at 20 µg

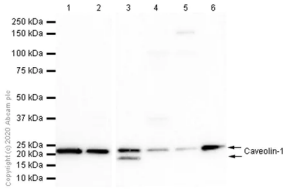
Lane 3:
A549 (Human lung carcinoma cell line) whole cell lysate at 20 µg

Lane 4:
HeLa (Human epithelial cell line from cervix adenocarcinoma) whole cell lysate at 20 µg

Performed under reducing conditions.

Predicted band size: 20 kDa

Observed band size: 20 kDa



Western blot - Anti-Caveolin-1 antibody [E249] - Caveolae Marker (ab32577)

Caveolin-1 Western blot staining using rabbit Anti-Caveolin-1 antibody

The two isoforms of Caveolin-1 have been described in the literatures (PMID: 12816877, 11748292 and 14992406). We are unsure about the nature of the 250kDa bands.
All lanes:
Western blot - Anti-Caveolin-1 antibody [E249] - Caveolae Marker (ab32577) at 1/1000 dilution

Lane 1:
Mouse heart lysate at 20 µg

Lane 2:
Mouse skeletal muscle lysate at 20 µg

Lane 3:
Rat heart lysate at 20 µg

Lane 4:
Rat skeletal muscle lysate at 20 µg

Lane 5:
C2C12 (Mouse myoblasts myoblast) whole cell lysate at 20 µg

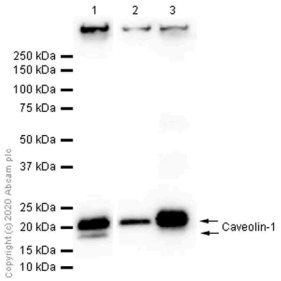
Lane 6:
NIH/3T3 (Mouse embryonic fibroblast) whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 20 kDa

Observed band size: 17 kDa, 23 kDa



Western blot - Anti-Caveolin-1 antibody [E249] - Caveolae Marker (ab32577)

Caveolin-1 Western blot staining using rabbit Anti-Caveolin-1 antibody

The two isoforms of Caveolin-1 have been described in the literatures (PMID: 12816877, 11748292 and 14992406). We are unsure about the nature of the 250kDa bands.
All lanes:
Western blot - Anti-Caveolin-1 antibody [E249] - Caveolae Marker (ab32577) at 1/1000 dilution

Lane 1:
A431 (Human epidermoid carcinoma epithelial cell) whole cell lysate at 20 µg

Lane 2:
HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate at 20 µg

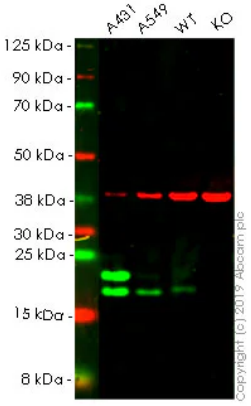
Lane 3:
HaCaT (Human skin keratinocyte) whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 20 kDa

Observed band size: 17 kDa, 23 kDa



Western blot - Anti-Caveolin-1 antibody [E249] - Caveolae Marker (ab32577)

Caveolin-1 Western blot staining using rabbit Anti-Caveolin-1 antibody

Lanes 1 - 4: Merged signal (red and green). Green - ab32577 observed at 20 kDa. Red - loading control, ab8245 observed at 37 kDa.
ab32577 was shown to react with Caveolin-1 in wild-type HeLa cells. Loss of signal was observed when knockout cell line ab255371 (knockout cell lysate ab263806) was used. Wild-type and Caveolin-1 knockout samples were subjected to SDS-PAGE. ab32577 and Anti-GAPDH antibody [6C5] - Loading Control (ab8245) were incubated overnight at 4°C at 1 in 1000 dilution and 1 in 20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preadsorbed (ab216776) secondary antibodies at 1 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-Caveolin-1 antibody [E249] - Caveolae Marker (ab32577) at 1/1000 dilution

Lane 1:
A431 cell lysate at 20 µg

Lane 2:
A549 cell lysate at 20 µg

Lane 3:
Wild-type HeLa cell lysate at 20 µg

Lane 4:
Western blot - Human CAV1 (Caveolin-1) knockout HeLa cell lysate (ab263806) at 20 µg

Secondary

All lanes:
Western blot - Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) at 1/20000 dilution

Performed under reducing conditions.

Predicted band size: 20 kDa

Observed band size: 20 kDa, 37 kDa

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