abcam

ab192869

Anti-Caveolin-1 antibody [EPR15554] - N-terminal - Caveolae Marker

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	EPR15554
Purification technique	Affinity purification Protein A
Concentration	0.618 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Human
Dilution info	1/300
Notes	Methanol fixation is recommended.

Expected

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

IP

Tested

Species	Human
Dilution info	1/30
Notes	-

Expected

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

WB

Tested

Species	Human
Dilution info	1/10000 - 1/50000
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Mouse
Dilution info	1/120
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Species	Human
Dilution info	1/120
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

IHC-P

Tested

Species	Mouse
Dilution info	1/4000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Human
Dilution info	1/4000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

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 duration	1-2 weeks
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

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.

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

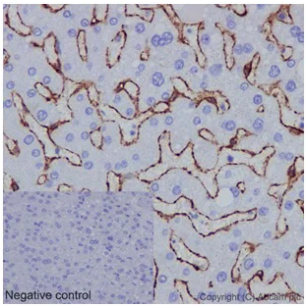
We do not recommend this combination. It is not covered by our product promise.

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.

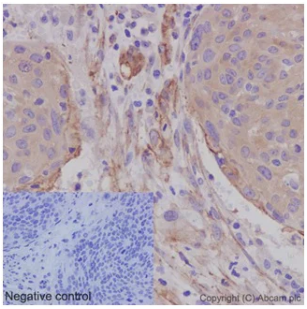
14 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Caveolin-1 antibody [EPR15554] - N-terminal - Caveolae Marker (ab192869)

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

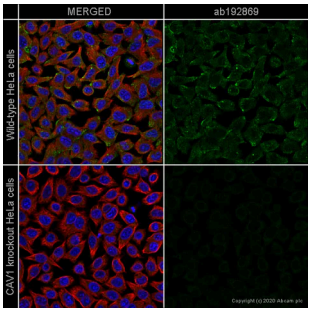
Immunohistochemical analysis of paraffin-embedded Human liver tissue labeling Caveolin-1 using ab192869 at 1/4000 dilution (0.15 µg/ml). A prediluted HRP Polymer for Rabbit IgG was used as the secondary. Counterstain: Hematoxylin. Negative control also shown.
Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Caveolin-1 antibody [EPR15554] - N-terminal - Caveolae Marker (ab192869)

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

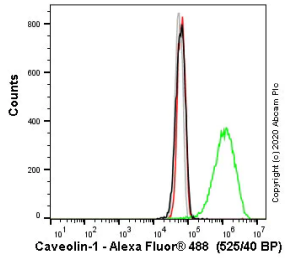
Immunohistochemical analysis of paraffin-embedded Human squamous cell carcinoma of cervix tissue labeling Caveolin-1 using ab192869 at 1/4000 dilution (0.15 µg/ml). A prediluted HRP Polymer for Rabbit IgG was used as the secondary. Counterstain: Hematoxylin. Negative control also shown.
Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Immunocytochemistry/ Immunofluorescence - Anti-Caveolin-1 antibody [EPR15554] - N-terminal - Caveolae Marker (ab192869)

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

ab192869 staining Caveolin-1 in wild-type HeLa cells (top panel) and CAV1 knockout HeLa cells (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 ab192869 at 1/500 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 (Intracellular) - Anti-Caveolin-1 antibody [EPR15554] - N-terminal - Caveolae Marker (ab192869)

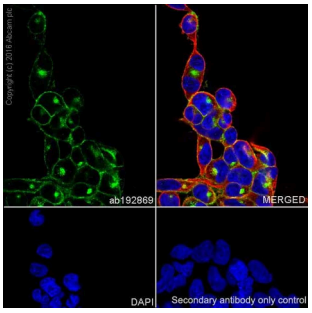
Caveolin-1 Flow Cytometry (Intracellular) staining using rabbit Anti-Caveolin-1 antibody

Intracellular Intracellular Flow Cytometry overlay histogram showing wild-type HeLa (green line) and CAV1 knockout HeLa cells (ab255371) stained with ab192869 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Triton X-100 for 15 min. The cells were then incubated in 1x PBS containing 10% normal goat serum to block non-specific

protein-protein interaction followed by the antibody (ab192869) (1x10^6 in 100µl at 0.04 µg/ml) for 30 min at 22°C.
The secondary antibody Goat anti-rabbit IgG H&L (Alexa Fluorr® 488, pre-adsorbed) (ab150081) was used at 1/2000 for 30 min at 22°C.

Isotype control antibody was Rabbit IgG (monoclonal) (ab172730) used at the same concentration and conditions as the primary antibody (wild-type HeLa - black line CAV1 knockout HeLa - grey line). Unlabelled sample was also used as a control (this line is not shown for the purpose of simplicity).

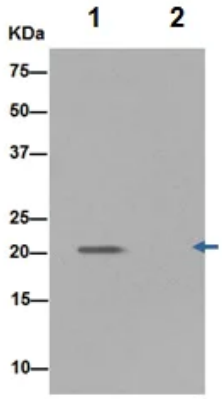
Acquisition of >5000 events were collected using a 50 mW Blue laser (488nm) and 525/40 bandpass filter.



Immunocytochemistry/ Immunofluorescence - Anti-Caveolin-1 antibody [EPR15554] - N-terminal - Caveolae Marker (ab192869)

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

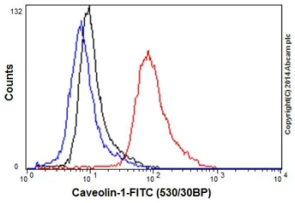
Immunocytochemistry/Immunofluorescence analysis of A-673 cells labelling Caveolin-1 with ab192869 at a dilution of 1/100. Cells were fixed with 4% paraformaldehyde and permeabilized with 0.1% Triton X-100. ab150077, an Alexa Fluor® 488-conjugated goat anti-rabbit IgG (1/1000) was used as the secondary antibody. The cells were co-stained with ab195889, Alexa Fluor® 594-conjugated anti-Tubulin [DM1A] at a dilution of 1/200. Nuclei counterstained with DAPI (blue).



Immunoprecipitation - Anti-Caveolin-1 antibody [EPR15554] - N-terminal - Caveolae Marker (ab192869)

Immunoprecipitation analysis of A431 cell lysate labeling Caveolin-1 using ab192869 at 1/30 dilution (Lane 1). PBS negative control (Lane 2). Anti-Rabbit IgG (HRP), specific to the non-reduced form of IgG at 1/1500 was used as the secondary antibody.
All lanes:
Immunoprecipitation - Anti-Caveolin-1 antibody [EPR15554] - N-terminal - Caveolae Marker (ab192869)

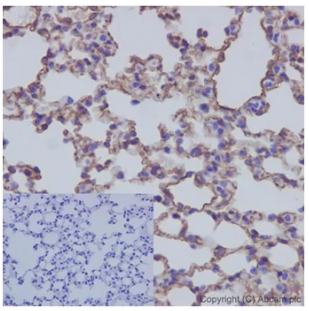
Predicted band size: 20 kDa



Flow Cytometry (Intracellular) - Anti-Caveolin-1 antibody [EPR15554] - N-terminal - Caveolae Marker (ab192869)

Caveolin-1 Flow Cytometry (Intracellular) staining using rabbit Anti-Caveolin-1 antibody

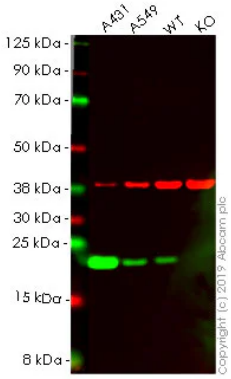
Intracellular Flow Cytometry analysis of NIH3T3 cells labeling Caveolin-1 using ab192869 at a 1/120 dilution (Red). A Goat anti rabbit IgG (FITC) at 1/150 dilution was used as secondary antibody. Cells were fixed with 2% paraformaldehyde. Cells without incubation with primary antibody and secondary antibody Blue. Rabbit monoclonal IgG was used as isotype control (Black).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Caveolin-1 antibody [EPR15554] - N-terminal - Caveolae Marker (ab192869)

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

Immunohistochemical analysis of paraffin-embeddedMouse lung tissue labeling Caveolin-1 using ab192869 at 1/4000 dilution (0.15 µg/ml). A prediluted HRP Polymer for Rabbit IgG was used as the secondary. Counterstain: Hematoxylin. Negative control also shown.
Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Western blot - Anti-Caveolin-1 antibody [EPR15554] - N-terminal - Caveolae Marker (ab192869)

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

Lanes 1 - 4: Merged signal (red and green). Green - ab192869 observed at 20 kDa. Red - loading control, ab8245 observed at 37 kDa.
ab192869 was shown to react with Caveolin-1 in wild-type HeLa. 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. ab192869 and Anti-GAPDH antibody [6C5] - Loading Control (ab8245) were incubated overnight at 4°C at 1 in 10000 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 [EPR15554] - N-terminal - Caveolae Marker (ab192869) at 1/10000 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:
CAV1 knockout HeLa cell lysate at 20 µg

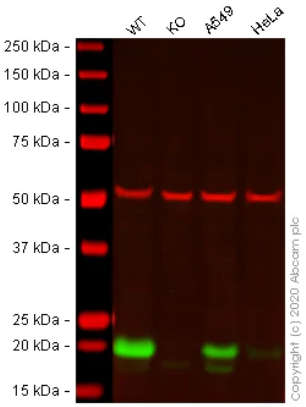
Secondary

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: 37 kDa



Western blot - Anti-Caveolin-1 antibody [EPR15554] - N-terminal - Caveolae Marker (ab192869)

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

This data was developed using the same antibody clone in a different buffer formulation (ab192869).
Lanes 1 - 4: Merged signal (red and green). Green - ab192869 observed at 21-24 kDa. Red - loading control, ab7291 (Mouse anti-Alpha Tubulin [DM1A] observed at 55kDa.

ab192869 was shown to react with Caveolin-1 in wild-type A-431 cells in western blot. Loss of signal was observed when CAV1 knockout cell line ab269583 (knockout cell lysate ab270706) was used. Wild-type A-431 and CAV1 knockout cell lysates were subjected to SDS-PAGE. Membranes were blocked in 5% milk in TBS-T (0.1% Tween®) before incubation with ab192869 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 [EPR15554] - N-terminal - Caveolae Marker (ab192869) 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 2:
Western blot - Human CAV1 (Caveolin-1) knockout A-431 cell line (ab269583)

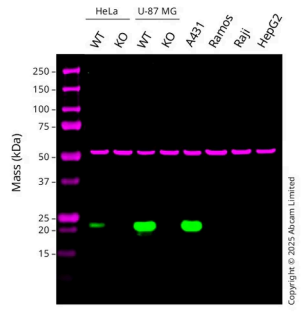
Lane 3:
A549 (Human lung carcinoma cell line) whole cell lysate at 20 µg

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: 21-24 kDa



Western blot - Anti-Caveolin-1 antibody [EPR15554] - N-terminal - Caveolae Marker (ab192869)

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

Western blot: Anti-Caveolin-1 antibody [EPR15554] - N-terminal - Caveolae Marker ab192869 staining at 1/1000 dilution, shown in green; Mouse anti alpha Tubulin ab7291 loading control staining at 1/20000 dilution, shown in magenta. A band was observed at 20 kDa in Wild-type HeLa cell lysates with no signal observed at this size in CAV1 knockout HeLa cell line. To generate this image, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 5pc Milk in TBS-0.1 % Tween® 20 (TBS-T) before incubation with primary antibodies overnight at 4 °C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged. Secondary antibodies used were Goat anti-Rabbit 800CW and Goat anti-Mouse 680RD at 1/20,000 dilution.

All lanes:
Western blot - Anti-Caveolin-1 antibody [EPR15554] - N-terminal - Caveolae Marker (ab192869) at 1/1000 dilution

Lane 1:
Wild-type HeLa whole cell lysate at 20 µg

Lane 2:
CAV1 knockout HeLa whole cell lysate at 20 µg

Lane 3:
Wild-type U-87 MG ab278079 whole cell lysate at 20 µg

Lane 4:
Western blot - Human CAV1 knockout U-87 MG cell line (ab306811) at 20 µg

Lane 5:
A431 whole cell lysate at 20 µg

Lane 6:
Ramos whole cell lysate at 20 µg

Lane 7:
Raji whole cell lysate at 20 µg

Lane 8:
HepG2 whole cell lysate at 20 µg

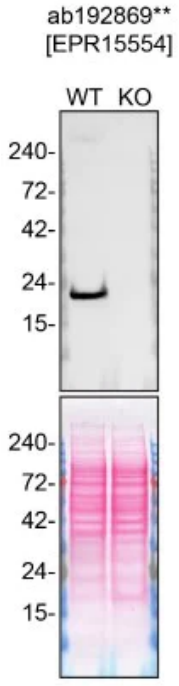
Secondary

All lanes:
Goat anti-Rabbit 800CW & Goat anti-Mouse 680RD at 1/20000 dilution

Performed under reducing conditions.

Predicted band size: 20 kDa

Observed band size: 20 kDa



Western blot - Anti-Caveolin-1 antibody [EPR15554] - N-terminal - Caveolae Marker (ab192869)

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

ab192869 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 ab192869 overnight at 4 °C at a 1/10000 dilution. Blots were incubated with secondary antibodies at 0.2 µg/mL before imaging.

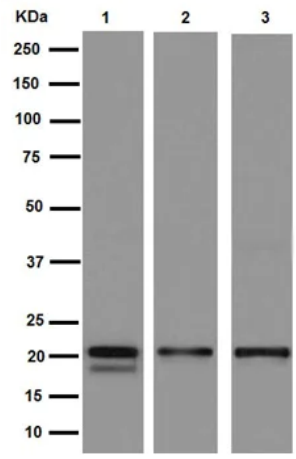
This data was provided by YCharOS Inc., an open science company with the mission of characterizing commercially available antibody reagents for all human proteins. Abcam and YCharOS are working together to help address the reproducibility crisis by enabling the life science community to better evaluate commercially available antibodies.
All lanes:
Western blot - Anti-Caveolin-1 antibody [EPR15554] - N-terminal - Caveolae Marker (ab192869) at 1/10000 dilution

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: 22 kDa



Western blot - Anti-Caveolin-1 antibody [EPR15554] - N-terminal - Caveolae Marker (ab192869)

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

All lanes:
Western blot - Anti-Caveolin-1 antibody [EPR15554] - N-terminal - Caveolae Marker (ab192869) at 1/10000 dilution

Lane 1:
PC-3 cell lysate at 10 µg

Lane 2:
A549 cell lysate at 10 µg

Lane 3:
A431 cell lysate at 10 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/1000 dilution

Predicted band size: 20 kDa

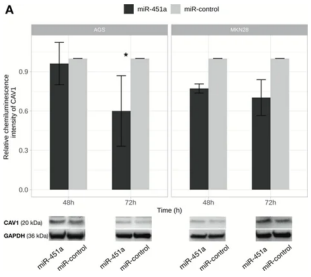


Image collected and cropped by CiteAb under a CC-BY license from the publication

Western blot - Anti-Caveolin-1 antibody [EPR15554] - N-terminal - Caveolae Marker (ab192869)

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

Caveolin-1 western blot using anti-Caveolin-1 antibody [EPR15554] - N-terminal ab192869. Publication image and figure legend from Streleckiene, G., Inciuraite, R., et al., 2020, Int J Mol Sci, PubMed 32013265.

ab192869 was used in this publication in western blot. This may not be the same as the application(s) guaranteed by Abcam. For a full list of applications guaranteed by Abcam for ab192869 please see the product overview.

CAV1 and TSC1 proteins level changes after exogenous up-regulation of miR-451a expression. CAV1 (A) and TSC1 (B) protein expression comparison 48 h and 72 h after transfection in AGS and MKN28 cell cultures transfected with miR-451a and miR-control. Significant CAV1 and TSC1 proteins' level decrease was determined 72 h after transfection in AGS cell culture. Representative pictures of CAV1 and TSC1 proteins signals detected by Western Blot presented at the bottom of a figure (* $p < 0.05$). Data from three independent experiments.

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