abcam

Product datasheet

Anti-Caveolin-3 antibody ab2912

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Overview

Product name	Anti-Caveolin-3 antibody
Description	Rabbit polyclonal to Caveolin-3
Host species	Rabbit
Specificity	This antibody does not detect caveolin-1 or -2.
Tested applications	**Suitable for:** IHC-P, ICC/IF, IHC-Fr, Flow Cyt, WB, IP
Species reactivity	**Reacts with:** Mouse, Rat, Sheep, Human
Immunogen	Synthetic peptide corresponding to Mouse Caveolin-3 aa 1-19. Sequence: MMTEEHTDLEARIIKDIHC (Peptide available as ab4930) Run BLAST with Run BLAST with
Positive control	WB: Rat heart, mouse heart, rat skeletal muscle, rat cardiac muscle and mouse muscle tissue lysates. ICC/IF: HeLa, A-375 and C2C11 cells. IHC-P: Mouse heart, lymph node and skeletal muscle tissue sections. IP: Mouse heart tissue lysate. Flow Cyt: U-87 MG cells.

Properties

Form	Liquid
Storage instructions	Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -20°C long term. Avoid freeze / thaw cycle.
Storage buffer	Preservative: 0.05% Sodium azide Constituents: 0.1% BSA, 99% PBS
Purity	Immunogen affinity purified
Purification notes	Antigen affinity chromatography.
Clonality	Polyclonal
Isotype	IgG

Applications

Our Abpromise guarantee covers the use of **ab2912** in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Application	Abreviews	Notes
IHC-P	★★★★☆	1/100 - 1/200.
ICC/IF		1/20.
IHC-Fr	★★★★☆	Use at an assay dependent concentration. PubMed: 21408028
Flow Cyt		Use 3-5µg for 10^6 cells.
WB	★★★★★	Use a concentration of 1 - 3 µg/ml. Can be blocked with Mouse Caveolin-3 peptide (ab4930).
IP		Use at an assay dependent concentration.

Target

Function

May act as a scaffolding protein within caveolar membranes. Interacts directly with G-protein alpha subunits and can functionally regulate their activity. May also regulate voltage-gated potassium channels. Plays a role in the sarcolemma repair mechanism of both skeletal muscle and cardiomyocytes that permits rapid resealing of membranes disrupted by mechanical stress.

Tissue specificity

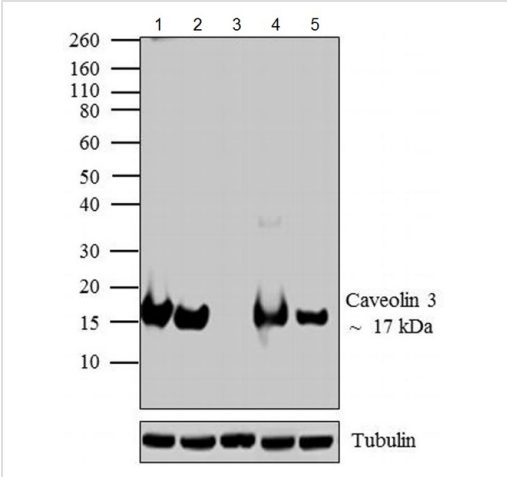
Expressed predominantly in muscle.

Involvement in disease

Defects in CAV3 are the cause of limb-girdle muscular dystrophy type 1C (LGMD1C) [MIM:607801]. LGMD1C is a myopathy characterized by calf hypertrophy and mild to moderate proximal muscle weakness. LGMD1C inheritance can be autosomal dominant or recessive.
Defects in CAV3 are a cause of hyperCKmia (HYPCK) [MIM:123320]. It is a disease characterized by persistent elevated levels of serum creatine kinase without muscle weakness.
Defects in CAV3 are a cause of rippling muscle disease (RMD) [MIM:606072]. RMD is a rare disorder characterized by mechanically triggered contractions of skeletal muscle. In RMD, mechanical stimulation leads to electrically silent muscle contractions that spread to neighboring fibers that cause visible ripples to move over the muscle.
Defects in CAV3 are a cause of cardiomyopathy familial hypertrophic (CMH) [MIM:192600]; also designated FHC or HCM. Familial hypertrophic cardiomyopathy is a hereditary heart disorder characterized by ventricular hypertrophy, which is usually asymmetric and often involves the interventricular septum. The symptoms include dyspnea, syncope, collapse, palpitations, and chest pain. They can be readily provoked by exercise. The disorder has inter- and intrafamilial variability ranging from benign to malignant forms with high risk of cardiac failure and sudden cardiac death.
Defects in CAV3 are the cause of long QT syndrome type 9 (LQT9) [MIM:611818]. Long QT syndromes are heart disorders characterized by a prolonged QT interval on the ECG and polymorphic ventricular arrhythmias. They cause syncope and sudden death in response to excercise or emotional stress. They can present with a sentinel event of sudden cardiac death in infancy.
Defects in CAV3 can be a cause of sudden infant death syndrome (SIDS) [MIM:272120]. SIDS is the sudden death of an infant younger than 1 year that remains unexplained after a thorough case investigation, including performance of a complete autopsy, examination of the death scene, and review of clinical history. Pathophysiologic mechanisms for SIDS may include respiratory dysfunction, cardiac dysrhythmias, cardiorespiratory instability, and inborn errors of

	metabolism, but definitive pathogenic mechanisms precipitating an infant sudden death remain elusive. Long QT syndromes-associated mutations can be responsible for some SIDS cases.
Sequence similarities	Belongs to the caveolin family.
Cellular localization	Golgi apparatus membrane. Cell membrane. Membrane > caveola. Potential hairpin-like structure in the membrane. Membrane protein of caveolae.

Images



Western blot - Anti-Caveolin-3 antibody (ab2912)

All lanes : Anti-Caveolin-3 antibody (ab2912)

Lane 1 : Rat heart tissue lysate
Lane 2 : Mouse heart tissue lysate
Lane 3 : HEK293 cell lysate
Lane 4 : Rat skeletal muscle tissue lysate
Lane 5 : Mouse muscle tissue lysate

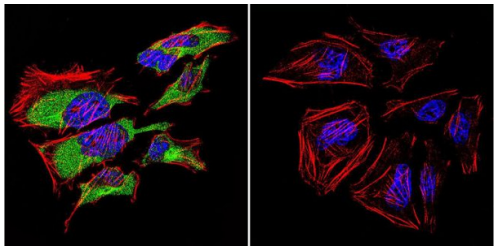
Lysates/proteins at 20 µg per lane.

Secondary
All lanes : HRP-conjugated goat anti-rabbit IgG (H+L) at 1/2500 dilution

Developed using the ECL technique.

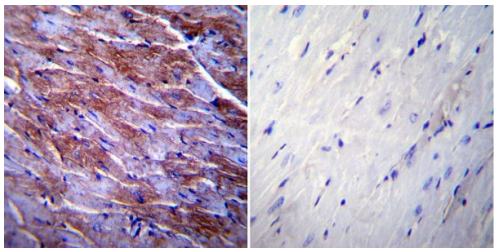
Observed band size: 17 kDa

Blocked with 5% skimmed milk.



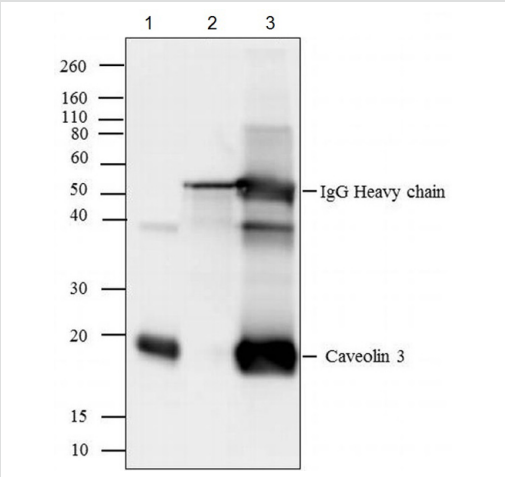
Immunocytochemistry/ Immunofluorescence - Anti-Caveolin-3 antibody (ab2912)

Immunocytochemistry/Immunofluorescence analysis of Caveolin-3 in HeLa Cells. Cells were grown on chamber slides and fixed with formaldehyde prior to staining. Cells were probed without (control) (right panel) or with ab2912 at a dilution of 1/20 overnight at 4°C, washed with PBS and incubated with a DyLight-488 conjugated secondary antibody. Caveolin-3 staining (green), F-Actin staining with Phalloidin (red) and nuclei with DAPI (blue) is shown. Images were taken at 60X magnification.



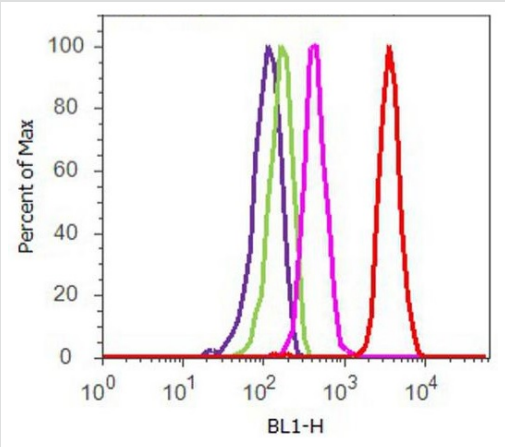
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Caveolin-3 antibody (ab2912)

Immunohistochemistry was performed on normal biopsies of deparaffinized mouse heart tissue. To expose target proteins heat induced antigen retrieval was performed using 10mM sodium citrate (pH6.0) buffer microwaved for 8-15 minutes. Following antigen retrieval tissues were blocked in 3% BSA-PBS for 30 minutes at room temperature. Tissues were then probed at a dilution of 1/200 with a rabbit polyclonal antibody recognizing Caveolin-3 ab2912 or without primary antibody (negative control) overnight at 4°C in a humidified chamber. Tissues were washed extensively with PBST and endogenous peroxidase activity was quenched with a peroxidase suppressor. Detection was performed using a biotin-conjugated secondary antibody and SA-HRP followed by colorimetric detection using DAB. Tissues were counterstained with hematoxylin and prepped for mounting.



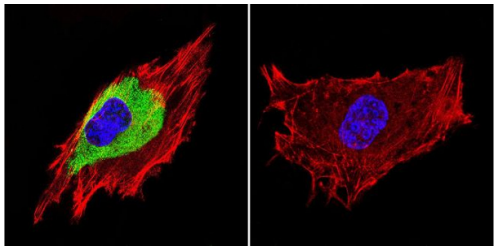
Immunoprecipitation - Anti-Caveolin-3 antibody (ab2912)

Caveolin-3 was immunoprecipitated using 5 µg of ab2912 from mouse heart tissue lysate (Lane 3) using the protein A beads. Normal rabbit IgG was used as a isotype control (Lane 2). 10% input represents the cell extract used for immunoprecipitation (Lane 1). Western blot analysis was performed using ab2912 and HRP-conjugated goat anti-rabbit IgG (H+L) at a dilution of 1/2500. Chemiluminescent detection was performed.



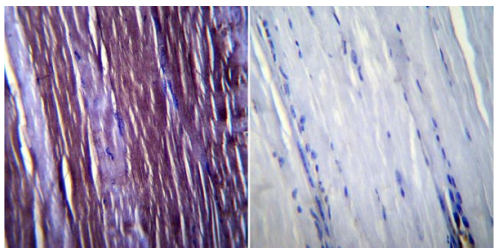
Flow Cytometry - Anti-Caveolin-3 antibody (ab2912)

Flow cytometry analysis of U-87 MG cells. Cells were fixed with 70% ethanol for 10 minutes, permeabilized with 0.25% Triton X-100 for 20 minutes, and blocked with 5% BSA for 30 minutes at room temperature. Cells were labeled with ab2912 (red histogram) or with rabbit isotype control (pink histogram) at 3-5 ug/million cells in 2.5% BSA. After incubation at room temperature for 2 hours, the cells were labeled with Alexa Fluor® 488-conjugated goat anti-rabbit secondary antibody at a dilution of 1/400 for 30 minutes at room temperature. The purple histogram represents unstained control cells and the green histogram represents no-primary-antibody control.



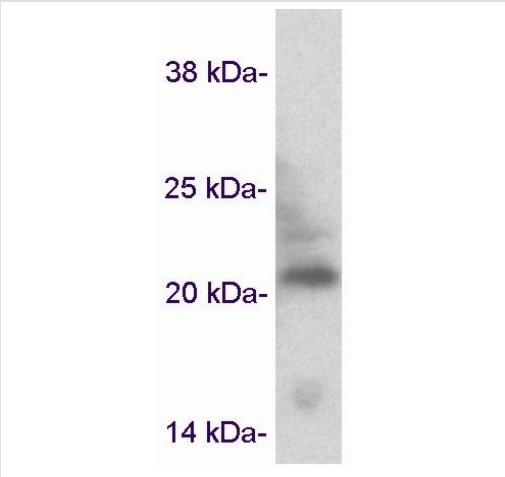
Immunocytochemistry/ Immunofluorescence - Anti-Caveolin-3 antibody (ab2912)

Immunofluorescent analysis of Caveolin-3 in C2C11 Cells. Cells were grown on chamber slides and fixed with formaldehyde prior to staining. Cells were probed without (control) (right panel) or with ab2912 at a dilution of 1/20 overnight at 4 C, washed with PBS and incubated with a DyLight-488 conjugated secondary antibody. Caveolin-3 staining (green), F-Actin staining with Phalloidin (red) and nuclei with DAPI (blue) is shown. Images were taken at 60X magnification.



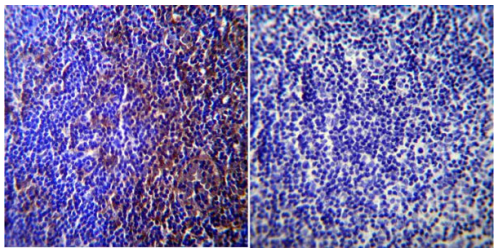
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Caveolin-3 antibody (ab2912)

Immunohistochemistry was performed on normal biopsies of deparaffinized Mouse skeletal muscle tissue. To expose target proteins heat induced antigen retrieval was performed using 10mM sodium citrate (pH6.0) buffer microwaved for 8-15 minutes. Following antigen retrieval tissues were blocked in 3% BSA-PBS for 30 minutes at room temperature. Tissues were then probed at a dilution of 1/100 with a rabbit polyclonal antibody recognizing Caveolin-3 ab2912 or without primary antibody (negative control) overnight at 4°C in a humidified chamber. Tissues were washed extensively with PBST and endogenous peroxidase activity was quenched with a peroxidase suppressor. Detection was performed using a biotin-conjugated secondary antibody and SA-HRP followed by colorimetric detection using DAB. Tissues were counterstained with hematoxylin and prepped for mounting.



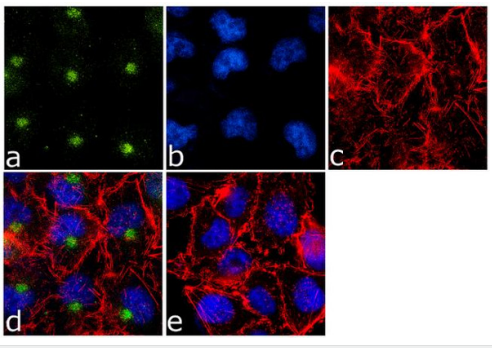
Western blot - Anti-Caveolin-3 antibody (ab2912)

Anti-Caveolin-3 antibody (ab2912) + Rat cardiac muscle tissue lysate



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Caveolin-3 antibody (ab2912)

Immunohistochemistry was performed on normal biopsies of deparaffinized mouse lymph node tissue. To expose target proteins heat induced antigen retrieval was performed using 10mM sodium citrate (pH6.0) buffer microwaved for 8-15 minutes. Following antigen retrieval tissues were blocked in 3% BSA-PBS for 30 minutes at room temperature. Tissues were then probed at a dilution of 1/200 with a rabbit polyclonal antibody recognizing Caveolin-3 ab2912 or without primary antibody (negative control) overnight at 4°C in a humidified chamber. Tissues were washed extensively with PBST and endogenous peroxidase activity was quenched with a peroxidase suppressor. Detection was performed using a biotin-conjugated secondary antibody and SA-HRP followed by colorimetric detection using DAB. Tissues were counterstained with hematoxylin and prepped for mounting.



Immunocytochemistry/ Immunofluorescence - Anti-Caveolin-3 antibody (ab2912)

Immunocytochemistry/Immunofluorescence analysis of 70% confluent log phase A-375 cells. Cells were fixed with 4% paraformaldehyde for 15 minutes, permeabilized with 0.25% Triton X-100 for 10 minutes, and blocked with 5% BSA for 1 hour at room temperature. Samples were incubated with ab2912 at 1µg/ml in 1% BSA for 3 hours at room temperature and then labelled with Alexa Fluor® 488-conjugated goat anti-rabbit IgG (H+L) at a dilution of 1/2000 for 45 minutes at room temperature (panel a: green). Nuclei (panel b: blue) were stained with DAPI. F-actin (panel c: red) was stained with Alexa Fluor® 555 Rhodamine Phalloidin (1/300). Panel d is a merged image showing cytoplasmic localization. Panel e is a no primary antibody control. The images were captured at 60X magnification.

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