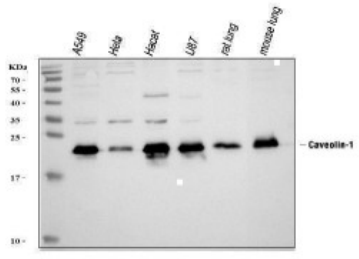
CAV1 Antibody / Caveolin-1 Polyclonal Antibody (R30587)

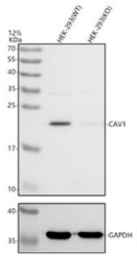
Catalog No.	Formulation	Size
R30587	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

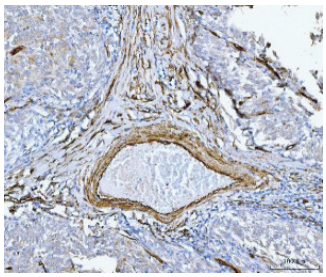
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	Q03135
Applications	Western blot: 0.5-1ug/ml Immunohistochemistry (FFPE): 2-5ug/ml Immunofluorescence: 5ug/ml
Limitations	This CAV1 Antibody / Caveolin-1 Polyclonal Antibody is available for research use only.



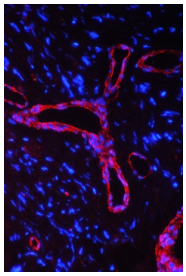
CAV1 Antibody WB Analysis of Human A549, HeLa, HaCaT, U87, Rat Lung and Mouse Lung Samples. Western blot analysis of human A549 (lane 1), HeLa (lane 2), HaCaT (lane 3), and U87 (lane 4) cell lysates, rat lung tissue lysate (lane 5), and mouse lung tissue lysate (lane 6) using Caveolin-1 Polyclonal Antibody. A prominent immunoreactive band is detected at approximately 22 kDa across the samples, consistent with the expected molecular weight of caveolin-1 alpha.



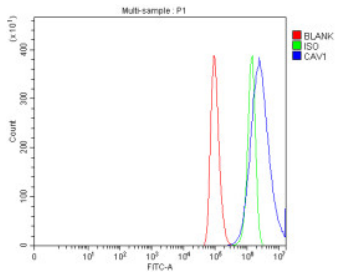
CAV1 Antibody WB Analysis of Human HEK293 WT and CAV1 KO Cells. Western blot analysis of wild-type (WT) HEK293 cell lysate (lane 1) and CAV1 knockout (KO) HEK293 cell lysate (lane 2) using Caveolin-1 Polyclonal Antibody. A prominent immunoreactive band is detected at approximately 22 kDa in WT cells and is markedly reduced in CAV1 KO cells, supporting antibody specificity. GAPDH served as the loading control.



CAV1 Antibody IHC Analysis of Human Melanoma Tissue. Immunohistochemical analysis of formalin-fixed, paraffin-embedded human melanoma tissue using Caveolin-1 Polyclonal Antibody. Prominent brown DAB staining highlights vascular walls and elongated stromal structures within the tumor tissue, consistent with caveolin-1 localization in vascular-associated cellular compartments.



CAV1 Antibody IF Analysis of Human Glioma Tissue. Immunofluorescence analysis of human glioma tissue using Caveolin-1 Polyclonal Antibody. Prominent red fluorescence highlights the walls of branching blood vessels, consistent with caveolin-1 expression in vascular endothelial cells. Cell nuclei are counterstained with DAPI (blue).



CAV1 Antibody FACS Staining of Fixed and Permeabilized Human A549 Cells. Flow cytometry analysis of human A549 cells using Caveolin-1 Polyclonal Antibody at 1 ug per million cells. Cells were fixed with 4% paraformaldehyde, permeabilized, and blocked with 10% normal goat serum before antibody incubation. The histogram compares unlabeled cells (red), isotype control (green), and CAV1 antibody-stained cells (blue). The antibody-stained population exhibits a rightward fluorescence shift relative to the isotype control, demonstrating increased antibody-associated fluorescence.

Description

CAV1 Antibody / Caveolin-1 Polyclonal Antibody recognizes caveolin-1, an integral membrane protein encoded by the CAV1 gene and a principal structural component of caveolae. These specialized invaginations of the plasma membrane participate in membrane organization, cholesterol homeostasis, mechanotransduction, and cellular signaling. Caveolin-1 is particularly important in cells containing abundant caveolae, where it contributes to the formation and maintenance of specialized membrane domains.

Caveolin-1 belongs to a small protein family that also includes caveolin-2 and caveolin-3. Its structure contains a central hydrophobic membrane-associated region, an oligomerization domain, and a conserved scaffolding domain involved in protein interactions. Unlike conventional transmembrane proteins, caveolin-1 adopts a hairpin-like configuration within the lipid bilayer, positioning both termini toward the cytoplasm. Caveolin-1 oligomers associate with cholesterol-rich membrane regions and cooperate with cavin proteins to organize caveolar structures.

The CAV1 gene produces two principal protein isoforms through alternative translation initiation. Caveolin-1 alpha contains the complete N-terminal sequence and has a molecular weight of approximately 21-22 kDa. Caveolin-1 beta lacks approximately 30 N-terminal amino acids and has a molecular weight of approximately 17-18 kDa. These isoforms share the central membrane-associated and C-terminal regions but differ in their N-terminal sequences. Caveolin-1 also undergoes regulatory phosphorylation, including modification of Tyr14, which has been associated with changes in membrane dynamics and signaling.

Caveolin-1 participates in the organization of signaling complexes involving integrins, Src-family kinases, growth factor receptors, and components of the Ras-MAPK pathway. Its effects on signaling depend on cellular context, membrane composition, and interactions with associated proteins. Caveolae also contribute to cellular responses to mechanical stress by flattening when membrane tension increases, providing a mechanism for accommodating changes in plasma membrane organization.

Altered caveolin-1 expression has been investigated in cardiovascular disease, metabolic disorders, fibrosis, and cancer. In malignant cells, caveolin-1 can influence adhesion, migration, invasion, and interactions with the extracellular matrix. Its biological effects vary among tumor types and stages, reflecting the complexity of caveolae-associated signaling. CAV1 Antibody is relevant to studies of membrane architecture, caveolae biogenesis, cholesterol-dependent signaling, mechanotransduction, and the regulation of cellular adhesion and migration.

For an additional reagent targeting this membrane scaffolding protein, see our Caveolin-1 Antibody, supported by western blot, immunohistochemistry, immunofluorescence, and flow cytometry testing.

Application Notes

The stated application concentrations are suggested starting points. Titration of the CAV1 Antibody / Caveolin-1 Polyclonal Antibody may be required due to differences in protocols and secondary/substrate sensitivity.

Immunogen

An amino acid sequence from the C-terminus of the human protein (GKIFSNVRINLQKEI) was used as the immunogen for this CAV1 Antibody.

Storage

After reconstitution, the CAV1 Antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

Alternate Names

Caveolin-1 antibody, Caveolin 1 antibody, VIP21 antibody, Vesicular integral membrane protein VIP21 antibody, Caveolae-associated protein antibody, Caveolin-1 alpha antibody, Caveolin-1 beta antibody

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