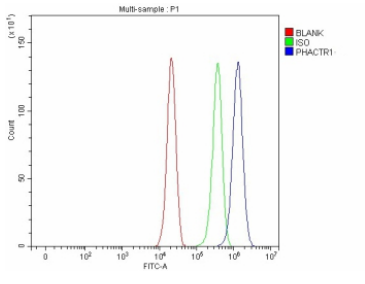
PHACTR1 Antibody / Phosphatase and actin regulator 1 (FY12165)

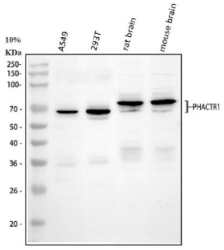
Catalog No.	Formulation	Size
FY12165	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q9C0D0
Applications	Western Blot : 0.25-0.5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This PHACTR1 antibody is available for research use only.



Flow Cytometry analysis of cells using anti-PHACTR1 antibody. Overlay histogram showing cells stained with (Blue line). To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-PHACTR1 antibody (1 ug/million cells) for 30 min at 20oC. DyLight 488 conjugated goat anti-rabbit IgG (5-10 ug/million cells) was used as secondary antibody for 30 minutes at 20oC. Isotype control antibody (Green line) was rabbit IgG (1 ug/million cells) used under the same conditions. Unlabelled sample without incubation with primary antibody and secondary antibody (Red line) was used as a blank control.



Western blot analysis of PHACTR1 using anti-PHACTR1 antibody. Lane 1: human whole cell lysates, Lane 2: human 293T whole cell lysates, Lane 3: rat brain tissue lysates, Lane 4: mouse brain tissue lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-PHACTR1 antibody at 0.5 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using enhanced chemiluminescent. The expected band size for PHACTR1 is at ~66 kDa but it is commonly observed at 66-75 kDa due to phosphorylation. The mouse and rat protein are slightly larger than the human protein.

Description

PHACTR1 antibody detects Phosphatase and actin regulator 1, encoded by the PHACTR1 gene on chromosome 6p24.1. PHACTR1 antibody is applied in research on cytoskeletal regulation, actin remodeling, and cardiovascular disease. PHACTR1 belongs to the PHACTR family of proteins, which bind actin and protein phosphatase 1 (PP1). This dual binding capacity allows PHACTR1 to coordinate cytoskeletal dynamics with phosphatase-mediated signaling. Expression is widespread but particularly enriched in brain, vascular tissues, and heart, where it influences synaptic plasticity, endothelial function, and vascular remodeling.

Structurally, PHACTR1 contains actin-binding RPEL motifs and PP1-binding sequences. These motifs enable it to tether PP1 to the cytoskeleton, coupling actin regulation with dephosphorylation of signaling proteins. This scaffolding function integrates actin remodeling with signaling cascades controlling cell shape, migration, and adhesion. PHACTR1 also contains nuclear localization sequences, suggesting additional roles in nuclear signaling.

Functionally, PHACTR1 regulates endothelial cell function, neuronal differentiation, and vascular tone. In endothelial cells, PHACTR1 modulates angiogenesis and barrier integrity. In neurons, it influences spine morphogenesis and synaptic signaling. Genome-wide association studies have identified PHACTR1 polymorphisms associated with coronary artery disease, migraine, and cervical artery dissection. These findings establish PHACTR1 as a key link between cytoskeletal regulation and vascular biology. Researchers use PHACTR1 antibody to probe these pathways in cell and animal models.

Clinically, PHACTR1 variants strongly influence cardiovascular disease risk. Polymorphisms in the PHACTR1 locus alter expression levels and endothelial function, predisposing individuals to coronary artery disease and aneurysm formation. Altered PHACTR1 expression has also been associated with neurological disorders, including migraine and epilepsy. By regulating both vascular and neuronal processes, PHACTR1 connects cytoskeletal control to common diseases. Its widespread associations make it an appealing biomarker and therapeutic target.

Experimentally, PHACTR1 antibody is used in western blotting to detect the ~74 kDa phosphorylated protein, in immunohistochemistry to assess vascular expression, and in immunofluorescence microscopy to study actin cytoskeleton organization. Co-immunoprecipitation with PHACTR1 antibody helps reveal binding partners, including PP1 and actin. NSJ Bioreagents provides PHACTR1 antibody to support research into cytoskeletal regulation, cardiovascular biology, and neuronal function.

Application Notes

Optimal dilution of the PHACTR1 antibody should be determined by the researcher.

Immunogen

E.coli-derived human PHACTR1 recombinant protein (Position: K66-E395) was used as the immunogen for the PHACTR1 antibody.

Storage

After reconstitution, the PHACTR1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.