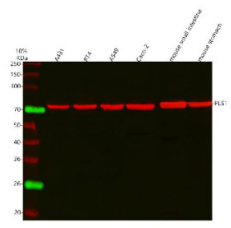
PLS1 Antibody / Plastin-1 (FY12925)

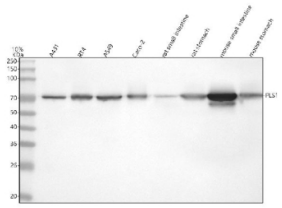
Catalog No.	Formulation	Size
FY12925	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

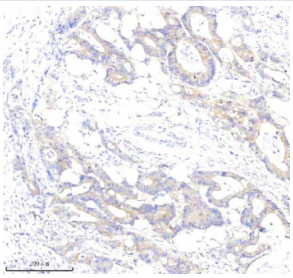
Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q14651
Localization	Cytoplasm
Applications	Western Blot: 0.25-0.5ug/ml Immunohistochemistry: 2-5ug/ml Immunocytochemistry: 5ug/ml Immunofluorescence: 5ug/ml Flow cytometry: 1-3ug/million cells ELISA: 0.1-0.5ug/ml
Limitations	This PLS1 antibody is available for research use only.



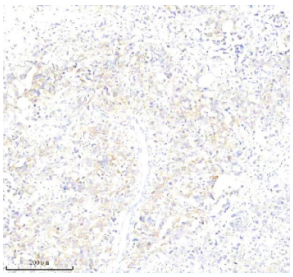
Western blot analysis of PLS1 using anti-PLS1 antibody. Lane 1: human whole cell lysates, Lane 2: human RT4 whole cell lysates, Lane 3: human whole cell lysates, Lane 4: human Caco-2 whole cell lysates, Lane 5: mouse small intestine tissue lysates, Lane 6: rat stomach tissue lysates. After electrophoresis, 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-PLS1 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-DyLight 647 Conjugated secondary antibody at a dilution of 1:2000 for 1.5 hour at RT. A specific band was detected for PLS1 at approximately 70 kDa. The expected molecular weight of PLS1 is at 70 kDa.



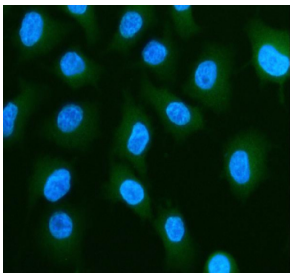
Western blot analysis of PLS1 using anti-PLS1 antibody. Lane 1: human whole cell lysates, Lane 2: human RT4 whole cell lysates, Lane 3: human whole cell lysates, Lane 4: human Caco-2 whole cell lysates, Lane 5: rat small intestine tissue lysates, Lane 6: rat stomach tissue lysates, Lane 7: mouse small intestine tissue lysates, Lane 8: mouse stomach 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-PLS1 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. A specific band was detected for PLS1 at approximately 70 kDa. The expected molecular weight of PLS1 is ~70 kDa.



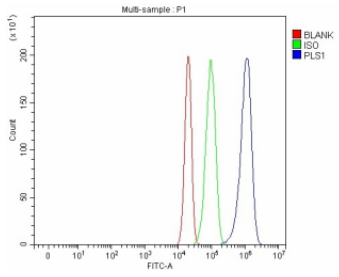
Immunohistochemical staining of PLS1 using anti-PLS1 antibody. PLS1 was detected in a paraffin-embedded section of human colon cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-PLS1 antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate.



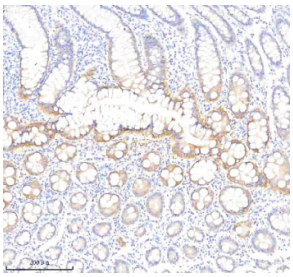
Immunohistochemical staining of PLS1 using anti-PLS1 antibody. PLS1 was detected in a paraffin-embedded section of human stomach cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-PLS1 antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate.



Immunofluorescent staining of PLS1 using anti-PLS1 antibody (blue). PLS1 was detected in an immunocytochemical section of cells. Enzyme antigen retrieval was performed using IHC enzyme antigen retrieval reagent for 15 mins. The cells were blocked with 10% goat serum. And then incubated with 5 ug/ml rabbit anti-PLS1 antibody overnight at 4oC. DyLight 488 Conjugated Goat Anti-Rabbit IgG was used as secondary antibody at 1:500 dilution and incubated for 30 minutes at 37oC. The section was counterstained with DAPI nuclear stain (blue). Visualize using a fluorescence microscope and filter sets appropriate for the label used.



Flow Cytometry analysis of RT4 cells using anti-PLS1 antibody. Overlay histogram showing RT4 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-PLS1 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.



Immunohistochemical staining of PLS1 using anti-PLS1 antibody. PLS1 was detected in a paraffin-embedded section of human colon tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-PLS1 antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate.

Description

PLS1 antibody detects Plastin-1, an actin-bundling protein that stabilizes and crosslinks actin filaments in epithelial and sensory cells. Encoded by the PLS1 gene on chromosome 3q23, this protein belongs to the plastin family of actin-bundling proteins, which includes isoforms expressed in hematopoietic, ubiquitous, and epithelial tissues. Plastin-1 plays an essential structural role in maintaining brush border microvilli in the intestinal epithelium and stereocilia in the inner ear, contributing to cellular rigidity and signal transduction.

Structurally, Plastin-1 is a 630-amino-acid cytoskeletal protein of approximately 68 kilodaltons containing two tandem calponin homology (CH) domains responsible for actin binding and two EF-hand calcium-binding motifs that regulate its activity. The protein localizes predominantly to actin-rich structures such as microvilli and adherens junctions, where it bundles filamentous actin into parallel arrays that reinforce cell shape and polarity.

The PLS1 antibody is widely used in cell biology, auditory physiology, and epithelial research to study cytoskeletal architecture, microvillar dynamics, and actin filament regulation. Western blot analysis detects a 68 kilodalton band corresponding to Plastin-1, while immunofluorescence demonstrates strong staining along apical membranes in epithelial cells. This antibody provides a reliable tool for investigating actin organization and microvillar maintenance.

Functionally, Plastin-1 is critical for maintaining the structural stability of brush border and sensory epithelia by linking actin filaments into tightly packed bundles. Mutations in PLS1 cause autosomal recessive nonsyndromic hearing loss due to disruption of stereocilia structure and function in cochlear hair cells. In intestinal cells, PLS1 supports nutrient absorption and epithelial resilience under mechanical stress. The PLS1 antibody supports studies of cytoskeletal integrity, epithelial morphogenesis, and hereditary hearing loss. NSJ Bioreagents validates this antibody for its applications, ensuring accurate detection of Plastin-1 in cytoskeletal research.

Application Notes

Optimal dilution of the PLS1 antibody should be determined by the researcher.

Immunogen

E.coli-derived human PLS1 recombinant protein (Position: E14-L581) was used as the immunogen for the PLS1 antibody.

Storage

After reconstitution, the PLS1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

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