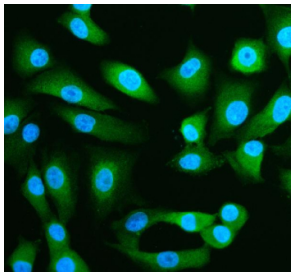
SPRED1 Antibody / Sprouty-related EVH1 domain-containing protein 1 (FY12707)

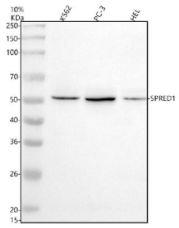
Catalog No.	Formulation	Size
FY12707	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

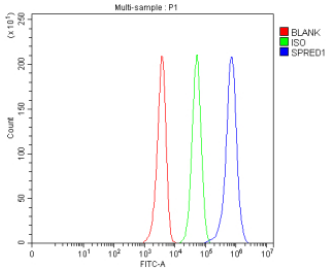
Availability	1-2 days
Species Reactivity	Human
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q7Z699
Applications	Western Blot : 0.25-0.5ug/ml Immunocytochemistry/Immunofluorescence : 5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This SPRED1 antibody is available for research use only.



Immunofluorescent staining of SPRED1 using anti-SPRED1 antibody (green). SPRED1 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-SPRED1 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.



Western blot analysis of SPRED1 using anti-SPRED1 antibody. Electrophoresis was performed on a 10% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human K562 whole cell lysates, Lane 2: human PC-3 whole cell lysates, Lane 3: human HEL whole cell 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-SPRED1 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 an ECL Plus Western Blotting Substrate. A specific band was detected for SPRED1 at approximately 50 kDa. The expected molecular weight of SPRED1 is ~50 kDa.



Flow Cytometry analysis of HEL cells using anti-SPRED1 antibody. Overlay histogram showing HEL cells stained with (Blue line). The cells were fixed with 4% paraformaldehyde and blocked with 10% normal goat serum. And then incubated with rabbit anti-SPRED1 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.

Description

SPRED1 antibody detects Sprouty-related EVH1 domain-containing protein 1 (also known as Sprouty-related protein with EVH1 domain 1), a membrane-associated signaling inhibitor that modulates the Ras/MAPK pathway. Encoded by the SPRED1 gene on chromosome 15q14, this protein belongs to the SPRED family, which acts as a negative regulator of growth factor signaling by inhibiting RAF activation downstream of Ras. SPRED1 contains an N-terminal Enabled/VASP homology 1 (EVH1) domain that mediates binding to other signaling proteins, a central c-Kit binding region, and a C-terminal Sprouty-related cysteine-rich domain required for membrane localization. Through these domains, SPRED1 fine-tunes MAPK activity, ensuring controlled cellular proliferation, differentiation, and migration.

SPRED1 plays critical roles during embryonic development, particularly in neural crest cell differentiation and vascular morphogenesis. Its inhibitory effect on Ras signaling prevents excessive ERK activation, which could otherwise lead to developmental abnormalities or oncogenic transformation. Mutations in SPRED1 cause Legius syndrome, an autosomal dominant disorder characterized by cafÃ¯Â¿Â½-au-lait macules, freckling, and learning difficulties that phenotypically overlap with neurofibromatosis type 1. This highlights the gene's importance in the neurofibromin-Ras regulatory axis, as SPRED1 interacts directly with neurofibromin (NF1) to recruit it to the plasma membrane for Ras inactivation.

The SPRED1 antibody is an important reagent for signal transduction, developmental biology, and cancer research. Western blot analysis identifies a 55 kilodalton band corresponding to SPRED1, while immunofluorescence reveals punctate cytoplasmic and membrane-associated staining. Expression of SPRED1 is widespread in brain, lung, liver, and vascular endothelium, reflecting its role in growth factor signaling regulation. Loss or downregulation of SPRED1 enhances Ras/MAPK signaling and has been associated with melanoma, hepatocellular carcinoma, and acute myeloid leukemia. Conversely, forced expression of SPRED1 suppresses ERK phosphorylation and reduces tumor cell invasiveness.

At the molecular level, SPRED1 acts as a scaffold that connects neurofibromin and Ras, stabilizing NF1-mediated GTPase activation. It also interferes with RAF recruitment to the plasma membrane, thereby preventing downstream MEK and ERK activation. These inhibitory effects are critical for maintaining normal signaling thresholds. In vascular endothelial cells, SPRED1 regulates VEGF-induced angiogenesis and vessel branching. In neurons, it contributes to axon guidance and synaptic stability by modulating localized MAPK signaling. The SPRED1 antibody is thus widely used to investigate feedback mechanisms in receptor tyrosine kinase signaling and to identify dysregulated pathways in cancer and developmental syndromes.

SPRED1 expression is tightly controlled by transcriptional and post-translational mechanisms, including phosphorylation and ubiquitination that determine its stability and subcellular localization. The protein's interaction with lipid rafts allows spatially restricted inhibition of MAPK signaling near the plasma membrane. NSJ Bioreagents provides the SPRED1 antibody validated for its applications, enabling detailed characterization of SPRED1's role in Ras pathway modulation, angiogenesis, and neurodevelopmental regulation.

Application Notes

Optimal dilution of the SPRED1 antibody should be determined by the researcher.

Immunogen

E.coli-derived human SPRED1 recombinant protein (Position: F45-K322) was used as the immunogen for the SPRED1 antibody.

Storage

After reconstitution, the SPRED1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

Copyright © NSJ Bioreagents. All rights reserved.