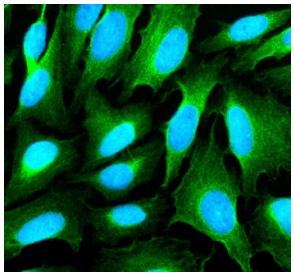
SHANK1 Antibody / SH3 and multiple ankyrin repeat domains protein 1 (FY12464)

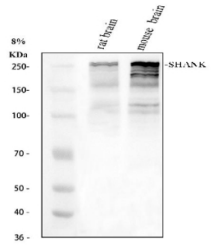
Catalog No.	Formulation	Size
FY12464	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

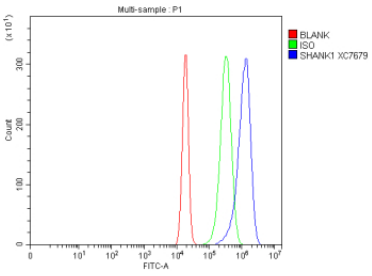
Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q9Y566
Localization	Cytoplasm
Applications	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 SHANK1 antibody is available for research use only.



Immunofluorescent staining of SHANK1 using anti-SHANK1 antibody (green). SHANK1 was detected in an immunocytochemical section of U2OS 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-SHANK1 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 SHANK1 using anti-SHANK1 antibody. Electrophoresis was performed on a 8% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: rat brain tissue lysates, Lane 2: 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-SHANK1 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. SHANK1 (~225 kDa predicted) was detected in brain lysates as major bands migrating at ~160-250 kDa, consistent with full-length and variant SHANK1 proteins. Additional bands migrating at ~100-120 kDa may represent truncated or alternative translation forms of SHANK1.



Flow Cytometry analysis of U2OS cells using anti-SHANK1 antibody. Overlay histogram showing U2OS 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-SHANK1 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

SHANK1 antibody recognizes SH3 and multiple ankyrin repeat domains protein 1, a large scaffolding protein of the postsynaptic density (PSD) essential for excitatory synapse organization and signaling. SHANK1 belongs to the SHANK family, which also includes SHANK2 and SHANK3, each coordinating complex protein-protein interactions that anchor neurotransmitter receptors and cytoskeletal elements at synapses. The SHANK1 antibody is a crucial reagent for studying synaptic plasticity, neurodevelopmental disorders, and molecular mechanisms underlying learning and memory.

SHANK1 is encoded by the SHANK1 gene located on human chromosome 19q13.33. The protein exceeds 200 kDa and contains several structural domains: multiple ankyrin repeats, an SH3 domain, a PDZ domain, a proline-rich region that interacts with cortactin and Homer, and a sterile alpha motif (SAM) that mediates self-association. These domains enable SHANK1 to function as a scaffold linking glutamate receptors, adhesion molecules, and signaling enzymes into large PSD assemblies. In neurons, SHANK1 stabilizes AMPA and NMDA receptor complexes and regulates dendritic spine morphology.

The SHANK1 antibody is commonly used to label postsynaptic structures, showing punctate localization in dendritic spines consistent with PSD distribution. Western blot analysis typically reveals a prominent band between 240-260 kDa. Functional studies demonstrate that SHANK1 promotes synapse maturation and coordinates actin cytoskeleton dynamics, thereby influencing neuronal connectivity and excitatory signaling. Mutations or deletions of SHANK family genes are associated with autism spectrum disorder and intellectual disability, underscoring the functional importance of these scaffolding proteins in brain development.

Beyond the nervous system, SHANK1 expression has been observed in testis and other tissues where it may regulate cytoskeletal organization. Interaction partners include PSD-95, GKAP, Homer, and cortactin, forming a structural network essential for synaptic signal transduction. Loss of SHANK1 disrupts synaptic transmission and reduces spine density, while overexpression alters synaptic scaling and excitatory balance. NSJ Bioreagents supplies a validated SHANK1 antibody optimized for western blot, immunocytochemistry, and confocal imaging, supporting high-resolution studies of synaptic architecture, neurodevelopment, and psychiatric disease mechanisms.

Application Notes

Optimal dilution of the SHANK1 antibody should be determined by the researcher.

Immunogen

E.coli-derived human SHANK1 recombinant protein (Position: D66-R2161) was used as the immunogen for the SHANK1 antibody.

Storage

After reconstitution, the SHANK1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.