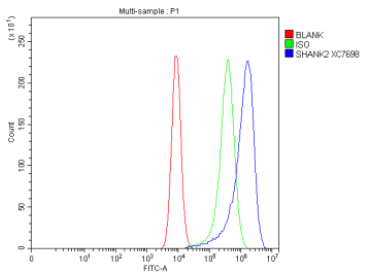
SHANK2 Antibody / SH3 and multiple ankyrin repeat domains protein 2 (FY12955)

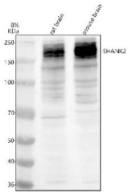
Catalog No.	Formulation	Size
FY12955	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

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	Q9UPX8
Applications	Western Blot: 0.25-0.5ug/ml Flow cytometry: 1-3ug/million cells ELISA: 0.1-0.5ug/ml
Limitations	This SHANK2 antibody is available for research use only.



Flow Cytometry analysis of Caco-2 cells using anti-SHANK2 antibody. Overlay histogram showing Caco-2 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-SHANK2 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 SHANK2 using anti-SHANK2 antibody. Electrophoresis was performed on a 8% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 6: rat brain tissue lysates, Lane 7: 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-SHANK2 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. In rat and mouse brain, a major band is detected near ~200 kDa, sometimes as a tight doublet. The higher-than-predicted migration reflects brain-enriched long SHANK2 isoforms and phosphorylation-dependent mobility differences characteristic of postsynaptic density scaffolds.

Description

SHANK2 antibody detects SH3 and multiple ankyrin repeat domains protein 2, a scaffolding protein of the postsynaptic density (PSD) that organizes synaptic signaling complexes. The UniProt recommended name is SH3 and multiple ankyrin repeat domains protein 2 (SHANK2). This large multidomain protein serves as a structural hub connecting neurotransmitter receptors, ion channels, and cytoskeletal elements at excitatory synapses.

Functionally, SHANK2 antibody recognizes a synaptic scaffolding protein of approximately 180-200 kDa that coordinates synaptic architecture and signaling. SHANK2 interacts with PSD-95, Homer, and cortactin, linking surface glutamate receptors to the actin cytoskeleton. These interactions stabilize dendritic spine morphology and facilitate efficient synaptic transmission. SHANK2's PDZ, SAM, and ankyrin repeat domains enable it to integrate diverse protein-protein interactions, forming large macromolecular complexes essential for signal transduction.

The SHANK2 gene is located on chromosome 11q13.3 and encodes multiple isoforms through alternative splicing. SHANK2 is particularly abundant in the cerebral cortex, hippocampus, and cerebellum, where it regulates synaptic plasticity and neuronal connectivity. Genetic studies associate SHANK2 mutations and deletions with autism spectrum disorder (ASD), intellectual disability, and schizophrenia, linking its dysfunction to altered excitatory signaling and neural circuit development.

SHANK2 antibody is a powerful tool for neuroscience research, enabling investigation of postsynaptic organization, receptor clustering, and synaptic remodeling. It is widely applied in western blotting, immunofluorescence, and co-immunoprecipitation to study excitatory synapses and protein interactions within the PSD. In neuronal cultures, SHANK2 colocalizes with synaptic markers such as PSD-95 and Synapsin, marking mature excitatory synapses. Loss of SHANK2 expression disrupts dendritic spine density and reduces AMPA and NMDA receptor-mediated currents, impairing synaptic strength.

Structurally, SHANK2's N-terminal ankyrin repeats mediate cytoskeletal binding, while its C-terminal SAM domain enables oligomerization, forming mesh-like scaffolds beneath the postsynaptic membrane. Post-translational modifications, including phosphorylation and palmitoylation, regulate its localization and synaptic activity. SHANK2 also interacts with neuroligins and mGluR5, connecting receptor signaling to structural reorganization. Dysregulation of SHANK2 leads to impaired synaptic signaling and behavioral abnormalities in animal models.

NSJ Bioreagents provides SHANK2 antibody reagents validated for research use in neurobiology, synaptic physiology, and disease modeling. These antibodies are ideal for identifying postsynaptic protein networks and assessing synaptic architecture in normal and pathological conditions.

Application Notes

Optimal dilution of the SHANK2 antibody should be determined by the researcher.

Immunogen

E.coli-derived human SHANK2 recombinant protein (Position: R845-D1827) was used as the immunogen for the SHANK2 antibody.

Storage

After reconstitution, the SHANK2 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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