SANTA CRUZ BIOTECHNOLOGY, INC.

Shank 3 (C-4): sc-377088

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

SH3 and multiple ankyrin repeat domains 1–3 (Shank1–3) of the Shank/ProSAP family are molecular scaffolds in the postsynaptic density (PSD). The PSD is an electron-dense structure underneath the postsynaptic plasma membrane of excitatory synapses that anchors and clusters glutamate receptors opposite to the presynaptic neurotransmitter release site. Shank proteins contain PDZ modular domains that coordinate the synaptic localization of ion channels, receptors, signaling enzymes, and cell adhesion molecules. The PDZ domain mediates protein-protein interactions via the recognition of a conserved sequence motif at the C-terminus of their target protein(s). Shank recruits βPIX and PAK to spines to regulate postsynaptic structure and interacts with NMDA receptor and metabotropic glutamate receptor complexes. Transcript splice variation in the Shank family influences the spectrum of Shank-interacting proteins in the PSDs of adult and developing brain to ensure normal development.

REFERENCES

1. Lim, S., et al. 1999. Characterization of the Shank family of synaptic proteins. Multiple genes, alternative splicing, and differential expression in brain and development. J. Biol. Chem. 274: 29510-29518.
2. Sheng, M., et al. 2000. The Shank family of scaffold proteins. J. Cell Sci. 113: 1851-1856.
3. Tobaben, S., et al. 2000. The G protein-coupled receptor CL1 interacts directly with proteins of the Shank family. J. Biol. Chem. 275: 36204-36210.

CHROMOSOMAL LOCATION

Genetic locus: SHANK3 (human) mapping to 22q13.33; Shank3 (mouse) mapping to 15 E3.

SOURCE

Shank 3 (C-4) is a mouse monoclonal antibody raised against amino acids 1431-1590 mapping near the C-terminus of isoform 2 of Shank 3 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Shank 3 (C-4) is available conjugated to agarose (sc-377088 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-377088 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-377088 PE), fluorescein (sc-377088 FITC), Alexa Fluor® 488 (sc-377088 AF488), Alexa Fluor® 546 (sc-377088 AF546), Alexa Fluor® 594 (sc-377088 AF594) or Alexa Fluor® 647 (sc-377088 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-377088 AF680) or Alexa Fluor® 790 (sc-377088 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

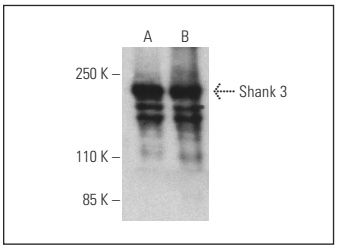
Shank 3 (C-4) is recommended for detection of Shank 3 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Shank 3 siRNA (h): sc-42200, Shank 3 siRNA (m): sc-42201, Shank 3 siRNA (r): sc-270274, Shank 3 shRNA Plasmid (h): sc-42200-SH, Shank 3 shRNA Plasmid (m): sc-42201-SH, Shank 3 shRNA Plasmid (r): sc-270274-SH, Shank 3 shRNA (h) Lentiviral Particles: sc-42200-V, Shank 3 shRNA (m) Lentiviral Particles: sc-42201-V and Shank 3 shRNA (r) Lentiviral Particles: sc-270274-V.

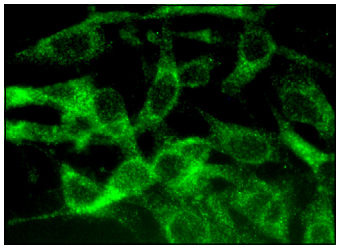
Molecular Weight of Shank 3: 180 kDa.

Positive Controls: mouse brain extract: sc-2253 or rat brain extract: sc-2392.

DATA



Shank 3 (C-4) HRP: sc-377088 HRP. Direct western blot analysis of Shank 3 expression in rat brain (**A**) and mouse brain (**B**) tissue extracts.



Shank 3 (C-4): sc-377088. Immunofluorescence staining of methanol-fixed NIH/3T3 cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Wan, L., et al. 2021. Expression of the excitatory postsynaptic scaffolding protein, Shank3, in human brain: effect of age and Alzheimer's disease. Front. Aging Neurosci. 13: 717263.
2. Okuzono, S., et al. 2023. Shank3a/b isoforms regulate the susceptibility to seizures and thalamocortical development in the early postnatal period of mice. Neurosci. Res. 193: 13-19.
3. Landry, O., et al. 2023. Postsynaptic protein Shank3a deficiency synergizes with Alzheimer's disease neuropathology to impair cognitive performance in the 3xTg-AD murine model. J. Neurosci. 43: 4941-4954.
4. Okuzono, S., et al. 2024. An N-terminal and ankyrin repeat domain interactome of Shank3 identifies the protein complex with the splicing regulator Nono in mice. Genes Cells 29: 746-756.
5. Kostyanovskaya, E., et al. 2025. Convergence of autism proteins at the cilium. bioRxiv. E-published.

RESEARCH USE

For research use only, not for use in diagnostic procedures.