

Shank 1 (D-20): sc-23542

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 betaPIX 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

- 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.
- Sheng, M. and Kim, E. 2000. The Shank family of scaffold proteins. *J. Cell Sci.* 113: 1851-1856.
- 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.
- Sala, C., et al. 2001. Regulation of dendritic spine morphology and synaptic function by Shank and Homer. *Neuron* 31: 115-130.
- Boeckers, T.M., et al. 2002. ProSAP/Shank proteins—a family of higher order organizing molecules of the postsynaptic density with an emerging role in human neurological disease. *J. Neurochem.* 81: 903-910.
- Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 604999. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

CHROMOSOMAL LOCATION

Genetic locus: SHANK1 (human) mapping to 19q13.33; Shank1 (mouse) mapping to 7 B4.

SOURCE

Shank 1 (D-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of Shank 1 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-23542 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

RESEARCH USE

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

APPLICATIONS

Shank 1 (D-20) is recommended for detection of Shank 1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

Shank 1 (D-20) is also recommended for detection of Shank 1 in additional species, including bovine and porcine.

Suitable for use as control antibody for Shank 1 siRNA (h): sc-42196, Shank 1 siRNA (m): sc-42197, Shank 1 shRNA Plasmid (h): sc-42196-SH, Shank 1 shRNA Plasmid (m): sc-42197-SH, Shank 1 shRNA (h) Lentiviral Particles: sc-42196-V and Shank 1 shRNA (m) Lentiviral Particles: sc-42197-V.

Molecular Weight of Shank 1: 240 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

- Redecker, P., et al. 2006. Expression of post-synaptic density proteins of the ProSAP/Shank family in the thymus. *Histochem. Cell Biol.* 126: 679-685.
- Bell, R.D., et al. 2012. Apolipoprotein E controls cerebrovascular integrity via cyclophilin A. *Nature* 485: 512-516.

STORAGE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.


 MONOS
 Satisfaction
 Guaranteed

Try **Shank 1/2/3 (G-12): sc-393963** or **Shank 1 (E-1): sc-398630**, our highly recommended monoclonal alternatives to Shank 1 (D-20).