

# Shank 2 (B-4): sc-365121

## 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  $\beta$ PIX 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., et al. 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/>
- Park, E., et al. 2003. The Shank family of postsynaptic density proteins interacts with and promotes synaptic accumulation of the  $\beta$ PIX guanine nucleotide exchange factor for Rac1 and Cdc42. *J. Biol. Chem.* 278: 19220-19229.

## CHROMOSOMAL LOCATION

Genetic locus: SHANK2 (human) mapping to 11q13.3; Shank2 (mouse) mapping to 7 F5.

## SOURCE

Shank 2 (B-4) is a mouse monoclonal antibody raised against amino acids 996-1110 mapping near the C-terminus of Shank 2 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>2b</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

Shank 2 (B-4) is recommended for detection of Shank 2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g 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 2 siRNA (h): sc-42198, Shank 2 siRNA (m): sc-42199, Shank 2 shRNA Plasmid (h): sc-42198-SH, Shank 2 shRNA Plasmid (m): sc-42199-SH, Shank 2 shRNA (h) Lentiviral Particles: sc-42198-V and Shank 2 shRNA (m) Lentiviral Particles: sc-42199-V.

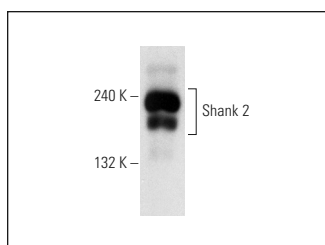
Molecular Weight of Shank 2 doublet: 165/180 kDa.

Positive Controls: IMR-32 cell lysate: sc-2409 or rat brain extract: sc-2392.

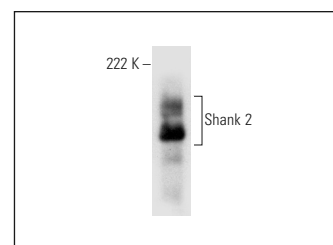
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## DATA



Shank 2 (B-4): sc-365121. Western blot analysis of Shank 2 expression in IMR-32 whole cell lysate.



Shank 2 (B-4): sc-365121. Western blot analysis of Shank 2 expression in rat brain tissue extract.

## SELECT PRODUCT CITATIONS

- 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.* E-published.

## STORAGE

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

## RESEARCH USE

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