

Shank 3

Cat.No. 162 302; Polyclonal rabbit antibody, 200 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	200 µl antiserum, lyophilized. For reconstitution add 200 µl H ₂ O, then aliquot and store at -20°C until use.
Applications	WB: 1 : 1000 (AP staining) IP: not tested yet ICC: 1 : 500 IHC: 1 : 500 (see remarks) IHC-P/FFPE: not tested yet EM: yes
Immunogen	Recombinant protein corresponding to AA 1055 to 1616 from rat Shank3 (UniProt Id: Q9JLU4)
Reactivity	Reacts with: rat (Q9JLU4), mouse (Q4ACU6). Other species not tested yet.
Specificity	Specific for shank 3.
Remarks	IHC: This antibody requires mild fixation. recommended protocol

TO BE USED IN VITRO / FOR RESEARCH ONLY
NOT TOXIC, NOT HAZARDOUS, NOT INFECTIOUS, NOT CONTAGIOUS

Shank 1, 2 and 3 are major proteins of the postsynaptic density (PSD). They are composed of several protein-protein interaction domains like PDZ-, homer- and ABP 1-binding domains which allow them to crosslink ionotropic and metabotropic glutamate receptor complexes with each other and to the actin-cytoskeleton.

Selected References SYSY Antibodies

Effects of trace metal profiles characteristic for autism on synapses in cultured neurons.
Hagmeyer S, Mangus K, Boeckers TM, Grabrucker AM
Neural plasticity (2015) 2015: 985083. **ICC, WB**

Zinc Stabilizes Shank3 at the Postsynaptic Density of Hippocampal Synapses.
Tao-Cheng JH, Toy D, Winters CA, Reese TS, Dosemeci A
PloS one (2016) 11(5): e0153979. **WB, EM**

Inhibition of IL-6 trans-signaling in the brain increases sociability in the BTBR mouse model of autism.

Wei H, Ma Y, Liu J, Ding C, Jin G, Wang Y, Hu F, Yu L
Biochimica et biophysica acta (2016) 1862(10): 1918-25. **WB, IHC; tested species: mouse**

Shank3 is localized in axons and presynaptic specializations of developing hippocampal neurons and involved in the modulation of NMDA receptor levels at axon terminals.

Halbedl S, Schoen M, Feiler MS, Boeckers TM, Schmeisser MJ
Journal of neurochemistry (2016) 137(1): 26-32. **WB, ICC**

Reduced Glutamate Release in Adult BTBR Mouse Model of Autism Spectrum Disorder.

Wei H, Ma Y, Ding C, Jin G, Liu J, Chang Q, Hu F, Yu L
Neurochemical research (2016) 41(11): 3129-3137. **WB, EM**

Neural precursor cells form integrated brain-like tissue when implanted into rat cerebrospinal fluid.

Pothayee N, Maric D, Sharer K, Tao-Cheng JH, Calac A, Bouraoud N, Pickel J, Dodd S, Koretsky A
Communications biology (2018) 1: 114. **EM; tested species: rat**

The Exocyst Component Exo70 Modulates Dendrite Arbor Formation, Synapse Density, and Spine Maturation in Primary Hippocampal Neurons.

Lira M, Arancibia D, Orrego PR, Montenegro-Venegas C, Cruz Y, García J, Leal-Ortiz S, Godoy JA, Gundelfinger ED, Inestrosa NC, Garner CC, et al.
Molecular neurobiology (2018) : . **ICC; tested species: rat**

Neuronal activity controls transsynaptic geometry.

Glebov OO, Cox S, Humphreys L, Burrone J
Scientific reports (2016) 6: 22703. **ICC**

The effects of proteasomal inhibition on synaptic proteostasis.

Hakim V, Cohen LD, Zuchman R, Ziv T, Ziv NE
The EMBO journal (2016) 35(20): 2238-2262. **ICC**

REST-Governed Gene Expression Profiling in a Neuronal Cell Model Reveals Novel Direct and Indirect Processes of Repression and Up-Regulation.

Garcia-Manteiga JM, Bonfiglio S, Folladori L, Malosio ML, Lazarevic D, Stupka E, Cittaro D, Meldolesi J
Frontiers in cellular neuroscience (2015) 9: 438. **WB**

Selected General References

Key role of the postsynaptic density scaffold proteins Shank and Homer in the functional architecture of Ca²⁺ homeostasis at dendritic spines in hippocampal neurons.

Sala C, Roussignol G, Meldolesi J, Fagni L
The Journal of neuroscience : the official journal of the Society for Neuroscience (2005) 25(18): 4587-92.

Shank expression is sufficient to induce functional dendritic spine synapses in aspiny neurons.

Roussignol G, Ango F, Romorini S, Tu JC, Sala C, Worley PF, Bockaert J, Fagni L
The Journal of neuroscience : the official journal of the Society for Neuroscience (2005) 25(14): 3560-70.

Postsynaptic shank antagonizes dendrite branching induced by the leucine-rich repeat protein Densin-180.

Quitsch A, Berhörster K, Liew CW, Richter D, Kreienkamp HJ
The Journal of neuroscience : the official journal of the Society for Neuroscience (2005) 25(2): 479-87.

Linkage of the actin cytoskeleton to the postsynaptic density via direct interactions of Abp1 with the ProSAP/Shank family.

Qualmann B, Boeckers TM, Jeromin M, Gundelfinger ED, Kessels MM
The Journal of neuroscience : the official journal of the Society for Neuroscience (2004) 24(10): 2481-95.

Crystal structure of the Shank PDZ-ligand complex reveals a class I PDZ interaction and a novel PDZ-PDZ dimerization.

Im YJ, Lee JH, Park SH, Park SJ, Rho SH, Kang GB, Kim E, Eom SH
The Journal of biological chemistry (2003) 278(48): 48099-104.

ProSAP/Shank proteins - a family of higher order organizing molecules of the postsynaptic density with an emerging role in human neurological disease.

Boeckers TM, Bockmann J, Kreutz MR, Gundelfinger ED
Journal of neurochemistry (2002) 81(5): 903-10.