SYSY Antibodies

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Shank3 (SPANK2)

Cat.No. 162 311; Monoclonal mouse antibody, 100 µg purified IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µg purified IgG, lyophilized. Albumin was added for stabilization. For **reconstitution** add 100 µl H_2O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C to -80°C until use. Antibodies should be stored at +4°C when still lyophilized. Do not freeze! For detailed information, see back of the data sheet.
Applications	**WB**: 1 : 500 up to 1 : 1000 (AP staining) (see remarks) **IP**: not tested yet **ICC**: 1 : 500 **IHC**: not recommended (see remarks) **IHC-P (FFPE)**: 1 : 200 (see remarks) **IHC-Fr**: 1 : 500 (see remarks)
Clone	144B12
Subtype	IgG1 (κ light chain)
Immunogen	Recombinant protein corresponding to residues near the carboxy terminus of rat Shank3 (UniProt Id: Q9JLU4)
Reactivity	Reacts with: rat (Q9JLU4), mouse (Q4ACU6). Other species not tested yet.
Specificity	Specific for Shank3
Remarks	**WB**: Due to the large size of this protein, we recommend NuPAGE 3-8% Tris-Acetate gels for SDS-PAGE. **IHC**: This antibody has been successfully used and published for this application by customers (see application-specific references). It is not compatible with our standard protocols. **IHC-P (FFPE)**: Antigen retrieval with Tris-EDTA buffer pH 9 is recommended for chromogenic detection. For chromogenic detection, an optimized AGR time of 20 minutes is recommended for best results. **IHC-Fr**: The following fixatives are possible: acetone, 4% formaldehyde/PFA. Methanol fixation is not advised.

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

Background

Shank1, 2 and **3** are major proteins of the postsynaptic density (PSD). They are composed of several protein-protein interaction domains like PDZ-, homer- and ABP1-binding domains which allow them to crosslink ionotopic and metabotropic glutamate receptor complexes with each other and to the actin-cytoskeleton.

Selected References for 162 311

SHANK3 Antibody Validation: Differential Performance in Western Blotting, Immunocyto- and Immunohistochemistry.
Lutz AK, Bauer HF, Ioannidis V, Schön M, Boeckers TM
Frontiers in synaptic neuroscience (2022) 14: 890231. . **WB, IHC; tested species: mouse**

A synaptic molecular dependency network in knockdown of autism- and schizophrenia-associated genes revealed by multiplexed imaging.
Falkovich R, Danielson EW, Perez de Arce K, Wamhoff EC, Strother J, Lapteva AP, Sheng M, Cottrell JR, Bathe M
Cell reports (2023) 425: 112430. . **ICC; KD verified; tested species: rat**

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 et al. J. Neurosci. (2005) PubMed:15872106

Shank expression is sufficient to induce functional dendritic spine synapses in aspiny neurons.
Roussignol G et al. J. Neurosci. (2005) PubMed:15814786

Postsynaptic shank antagonizes dendrite branching induced by the leucine-rich repeat protein Densin-180.
Quitsch A et al. J. Neurosci. (2005) PubMed:15647492

Linkage of the actin cytoskeleton to the postsynaptic density via direct interactions of Abp1 with the ProSAP/Shank family.
Qualmann B et al. J. Neurosci. (2004) PubMed:15014124

Crystal structure of the Shank PDZ-ligand complex reveals a class I PDZ interaction and a novel PDZ-PDZ dimerization.
Im YJ et al. J. Biol. Chem. (2003) PubMed:12954649

ProSAP/Shank proteins - a family of higher order organizing molecules of the postsynaptic density with an emerging role in human neurological disease.
Boeckers TM et al. J. Neurochem. (2002) PubMed:12065602

Regulation of dendritic spine morphology and synaptic function by Shank and Homer.
Sala C et al. Neuron (2001) PubMed:11498055

The G protein-coupled receptor CL1 interacts directly with proteins of the Shank family.
Tobaben S et al. J. Biol. Chem. (2000) PubMed:10958799

The Shank family of scaffold proteins.
Sheng M et al. J. Cell. Sci. (2000) PubMed:10806096

Shank, a novel family of postsynaptic density proteins that binds to the NMDA receptor/PSD-95/GKAP complex and cortactin.
Naisbitt S et al. Neuron (1999) PubMed:10433268

Access the online factsheet including applicable protocols at https://sysy.com/product/162311 or scan the QR-code.

FAQ - How should I store my antibody?

Shipping Conditions

- All SYSY antibodies and control proteins/peptides are shipped lyophilized (vacuum freeze-dried). In this form, they remain stable without loss of quality at ambient temperatures for several weeks.

Storage of Sealed Vials after Delivery

- **Unlabeled** and **biotin-labeled antibodies** and **control proteins** should be stored at **4°C** before reconstitution. **Do not freeze lyophilized antibodies**. Temperatures below 0°C may impair performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long-term storage of lyophilized fluorophore-conjugates may cause aggregation.
- **Control peptides** should be stored at -20°C before reconstitution.

Long Term Storage after Reconstitution (General Considerations)

- **Do not use frost-free ("no-frost") freezers.** These units periodically warm to remove ice buildup, causing freeze–thaw cycles that can damage antibodies.
- Store vials in areas with minimal temperature fluctuation - preferably toward the back of the freezer, not on the door.
- Aliquot reconstituted antibodies and store at –20°C to –80°C.
- Avoid very small aliquots (<20 µL), as evaporation and adsorption to tube surfaces can reduce antibody concentration and activity.
- Use the smallest practical storage vial to minimize surface area.
- Adding glycerol to a final concentration of 50% prevents freezing at -20°C, allowing storage in liquid form and effectively avoiding freeze–thaw cycles.

Product Specific Hints for Storage

Control proteins / peptides

- Store at -20°C to -80°C

Monoclonal Antibodies

- **Ascites and hybridoma supernatant:** Store at -20°C to -80°C
  Prolonged storage at 4°C is not recommended, as proteases present in ascites may degrade antibodies.
- **Purified IgG:** Store at -20°C to -80°C
  Adding a carrier protein (e.g., BSA) enhances long-term stability.
  Many SYSY antibodies already contain carrier proteins - refer to the respective datasheet for details.

Polyclonal Antibodies

- **Crude antisera:** Can be stored at 4°C with antimicrobials added, but -20°C to -80°C is preferred
- **Affinity-purified antibodies:** Less stable than antisera; store at -20°C to -80°C
  Adding a carrier protein such as BSA improves long-term stability.
  Most SYSY antibodies already contain carrier proteins - refer to the respective datasheet for details.

Fluorescence-labeled Antibodies

- Store as a liquid with 1:1 (v/v) glycerol at -20°C, and protect from light exposure

Avoid repeated freeze-thaw cycles for all antibodies!

FAQ - How should I reconstitute my antibody?

Reconstitution

- All purified SYSY antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the volume of deionized water specified in the corresponding datasheet. If a larger final volume is desired, first add the recommended amount of water, then adjust with PBS and, if needed, add a stabilizing carrier protein (e.g., BSA) to a final concentration of 2%. Some SYSY antibodies already contain albumin; please take this into account before adding additional carrier protein.

For complete reconstitution, carefully remove the vial cap. After adding water, briefly vortex the solution. To collect the liquid at the bottom of the vial, place the vial inside a 50 ml centrifuge tube padded with paper and centrifuge briefly.

- If desired, small amounts of azide or thimerosal may be added to prevent microbial growth. This is particularly recommended when storing an aliquot at 4°C.
- After reconstitution of fluorescence-labeled antibodies, add glycerol 1:1 (v/v) to achieve a final concentration of 50%. This prevents freezing at –20°C and keeps the antibody in liquid form, effectively avoiding freeze–thaw cycles.
- Glycerol may also be added to unlabeled primary antibodies as a general measure to prevent freeze–thaw damage.
- For further guidance, please refer to our **storage tips** and recommendations for reconstituted antibodies, control peptides, and control proteins.