SYSY Antibodies

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Shank2 (SPANK3)

Cat.No. 162 204; Polyclonal Guinea pig antibody, 100 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µl antiserum, lyophilized. For **reconstitution** add 100 µl H_2O, then aliquot and store at -20°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 : 1000 up to 1 : 5000 (AP staining) (see remarks) **IP**: not tested yet **ICC**: 1 : 1000 up to 1 : 2000 **IHC**: 1 : 500 **IHC-P (FFPE)**: external data (see remarks) **ExM**: external data (see remarks)
Immunogen	Recombinant protein corresponding to residues near the carboxy terminus of rat Shank2 (UniProt Id: Q9QX74)
Reactivity	Reacts with: rat (Q9QX74), mouse (Q80Z38), human (Q9UPX8). Other species not tested yet.
Specificity	K.O. validated PubMed: 29970987
Remarks	**WB**: Due to the large size of this protein, we recommend NuPAGE 3-8% Tris-Acetate gels for SDS-PAGE. **IHC-P (FFPE)**: This antibody has been successfully applied and published for this method by customers (see application-specific references). It has not been validated using our standard protocols. **ExM**: This antibody has been successfully applied and published for this method by customers (see application-specific references).

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 162 204

Dendritic spine morphology and memory formation depend on postsynaptic Caskin proteins.
Bencsik N, Pusztai S, Borbély S, Fekete A, Dülk M, Kis V, Pesti S, Vas V, Szűcs A, Buday L, Schlett K, et al.
Scientific reports (2019) 91: 16843. . **WB, IP, ICC; tested species: mouse**

Paralogs of Slitrk cell adhesion molecules configure excitatory synapse specificity via distinct cellular mechanisms.
Kim D, Kim B, Kim J, Seo NY, Kim H, Han KA, Yoon J, Macks CP, de Wit J, Sohn CH, Lee KJ, et al.
PLoS biology (2025) 2312: e3003576. . **EXM, ICC; tested species: mouse**

Distinctive alteration of presynaptic proteins in the outer molecular layer of the dentate gyrus in Alzheimer's disease.
Haytural H, Jordà-Siquier T, Winblad B, Mulle C, Tjernberg LO, Granholm AC, Frykman S, Barthet G
Brain communications (2021) 32: fcab079. . **IHC-P; tested species: human**

Cell-Type-Specific Shank2 Deletion in Mice Leads to Differential Synaptic and Behavioral Phenotypes.
Kim R, Kim J, Chung C, Ha S, Lee S, Lee E, Yoo YE, Kim W, Shin W, Kim E
The Journal of neuroscience : the official journal of the Society for Neuroscience (2018) 3817: 4076-4092. . **IHC; tested species: mouse**

Modulation of mGluR1 signaling improves Purkinje cell dysfunction associated with spinocerebellar ataxia 14.
Sziber Z, Tang S, Torrents-Solé P, Kovacevic A, Kapfhammer JP
iScience (2026) 2911: 117976. . **IHC; tested species: mouse**

A general one-step protocol to generate impermeable fluorescent HaloTag substrates for in situ live cell application and super-resolution imaging.
Roßmann K, Pabst U, Baciu BC, Sun S, Huhn C, Olesen CH, Kowald M, Tapp E, Bieck M, Birke R, Shields BC, et al.
Nature communications (2026) 171: 426. . **ICC; tested species: mouse**

Alzheimer's disease pathology degrades an NMDA receptor-dependent spontaneous activity pattern in cortico-hippocampal circuits.
Ellingford R, Harris SS, Kehring M, Rajani RM, Lam FKW, Graykowski D, Böken D, Welikovitch LA, Khasnavis A, Laban R, Heslegrave A, et al.
Neuron (2026) : . . **IHC; tested species: human,mouse**

Autism-like behavior induced by conditional ablation of the Bassoon gene in GABAergic interneurons.
Annamneedi A, Montenegro-Venegas C, Çalışkan G, Marosi EL, Blondiaux A, Tiwari N, Razzaq M, Kreutzmann JC, Pellissier LP, Fejtova A, Mikulovic S, et al.
Molecular psychiatry (2026) : . . **ICC; tested species: mouse**

Pathogenic UNC13A variants cause a neurodevelopmental syndrome by impairing synaptic function.
Asadollahi R, Ahmad A, Boonsawat P, Shahanoor Hinzen J, Lohse M, Bouazza-Arostegui B, Sun S, Utesch T, Sommer JD, Ilic D, Padmanarayana M, et al.
Nature genetics (2025) 5711: 2691-2704. . **IHC; tested species: mouse**

Light-microscopy-based connectomic reconstruction of mammalian brain tissue.
Tavakoli MR, Lyudchik J, Januszewski M, Vistunou V, Agudelo Dueñas N, Vorlaufer J, Sommer C, Kreuzinger C, Oliveira B, Cenameri A, Novarino G, et al.
Nature (2025) 6428067: 398-410. . **EXM**

Development of oxidized hyaluronic acid based hydrogels for neuronal tissue engineering: Effects of matrix stiffness on primary neurons.
Lorke M, Kuth S, Frischknecht R, Boccaccini AR
Acta biomaterialia (2025) 205: 454-466. . **ICC; tested species: rat**

Access the online factsheet including applicable protocols at https://sysy.com/product/162204 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.