SYSY Antibodies

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Shank2

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) **IP**: not tested yet **ICC**: 1 : 1000 up to 1 : 2000 **IHC**: 1 : 500 **IHC-P**: 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	**IHC-P**: 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**

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**

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**

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**

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**

Mapping proteomic composition of excitatory postsynaptic sites in the cerebellar cortex.
Robinson K, Delhaye M, Craig AM
Frontiers in molecular neuroscience (2024) 17: 1381534. . **EXM; tested species: mouse**

Rasopathy-Associated Mutation Ptpn11D61Y has Age-Dependent Effect on Synaptic Vesicle Recycling.
Guhathakurta D, Selzam F, Petrušková A, Weiss EM, Akdaş EY, Montenegro-Venegas C, Zenker M, Fejtová A
Cellular and molecular neurobiology (2024) 441: 77. . **ICC; tested species: mouse**

Manipulation of DHPS activity affects dendritic morphology and expression of synaptic proteins in primary rat cortical neurons.
Cavalli P, Raffauf A, Passarella S, Helmuth M, Dieterich DC, Landgraf P
Frontiers in cellular neuroscience (2024) 18: 1465011. . **WB; tested species: rat**

Photoproximity labeling of endogenous receptors in the live mouse brain in minutes.
Takato M, Sakamoto S, Nonaka H, Tanimura Valor FY, Tamura T, Hamachi I
Nature chemical biology (2024) : . . **IHC; tested species: mouse**

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 our antibodies and control proteins / peptides are shipped lyophilized (vacuum freeze-dried) and are stable in this form 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. **They must not be stored in the freezer when still lyophilized!** Temperatures below zero may cause loss of performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long term storage (several months) may lead to aggregation.
- **Control peptides** should be kept at -20°C before reconstitution.

Long Term Storage after Reconstitution (General Considerations)

- The storage freezer must not be of the frost-free variety ("no-frost freezer"). This cycle between freezing and thawing (to reduce frost-build-up), which is exactly what should be avoided. For the same reason, antibody vials should be placed in an area of the freezer that has minimal temperature fluctuations, for instance towards the back rather than on a door shelf.
- Aliquot the antibody and store frozen (-20°C to -80°C). Avoid very small aliquots (below 20 µl) and use the smallest storage vial or tube possible. The smaller the aliquot, the more the stock concentration is affected by evaporation and adsorption of the antibody to the surface of the storage vial or tube. Adsorption of the antibody to the surface leads to a substantial loss of activity.
- The addition of glycerol to a final concentration of 50% lowers the freezing point of your stock and keeps your antibody at -20°C in liquid state. This efficiently avoids freeze and thaw cycles.

Product Specific Hints for Storage

Control proteins / peptides

- Store at -20°C to -80°C.

Monoclonal Antibodies

- **Ascites** and **hybridoma supernatant** should be stored at -20°C up to -80°C. **Prolonged storage at 4°C is not recommended!** Unlike serum, ascites may contain proteases that will degrade the antibodies.
- **Purified IgG** should be stored at -20°C up to -80°C. Adding a carrier protein like BSA will increase long term stability. Many of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

Polyclonal Antibodies

- **Crude antisera**: With anti-microbials added, they may be stored at 4°C. However, frozen storage (-20°C up to -80°C) is preferable.
- **Affinity purified antibodies**: Less robust than antisera. Storage at -20°C up to -80°C is recommended. Adding a carrier protein like BSA will increase long term stability. Most of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

Fluorescence-labeled Antibodies

- Store as a liquid with 1 : 1 (v/v) glycerol at -20°C. Protect these antibodies from light exposure.

Avoid repeated freeze-thaw cycles for all antibodies!

FAQ - How should I reconstitute my antibody?

Reconstitution

- All our purified antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the amount of deionized water given in the respective datasheet. If higher volumes are preferred, add water as mentioned above and then the desired amount of PBS and a stabilizing carrier protein (e.g. BSA) to a final concentration of 2%. Some of our antibodies already contain albumin. Take this into account when adding more carrier protein.
  For complete reconstitution, carefully remove the lid. After adding water, briefly vortex the solution. You can spin down the liquid by placing the vial into a 50 ml centrifugation tube filled with paper.
- If desired, add small amounts of azide or thimerosal to prevent microbial growth. This is especially recommended if you want to keep an aliquot a 4°C.
- After reconstitution of fluorescence-labeled antibodies, add 1 : 1 (v/v) glycerol to a final concentration of 50%. This lowers the freezing point of your stock and keeps your antibody in liquid state at -20°C.
- Glycerol may also be added to unlabeled primary antibodies. It is a suitable way to avoid freeze-thaw cycles.
- Please refer to our **tips and hints for subsequent storage** of reconstituted antibodies and control peptides and proteins.