

## Shank3

Cat.No. 162 304; Polyclonal Guinea pig antibody, 100 µl antiserum (lyophilized)

### Data Sheet

Reconstitution/ Storage	100 µl antiserum, lyophilized. For <b>reconstitution</b> add 100 µl H <sub>2</sub> O, 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	<b>WB:</b> 1 : 1000 (AP staining) <b>IP:</b> yes <b>ICC:</b> 1 : 500 up to 1 : 2000 <b>IHC:</b> 1 : 500 <b>IHC-P:</b> 1 : 500 <b>IHC-Fr:</b> 1 : 500 (see remarks) <b>ExM:</b> 1 : 200 (see remarks)
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	Antigen used for immunization is present in all Shank3 isoforms described for rat and in all isoforms described for mouse except Shank3-B and Shank3-C4. K.O. validated PubMed: <a href="https://pubmed.ncbi.nlm.nih.gov/33115499/">33115499</a>
Remarks	<b>IHC-Fr:</b> Fixation with formaldehyde/PFA is recommended <b>ExM:</b> This antibody has been successfully used for the magnified analysis of the proteome (MAP) expansion microscopy method ( <a href="https://doi.org/10.1016/j.natbiotech.2016.07.011">MAP; Ku et al. 2016. Nature Biotechnology 34:973-981</a> )

**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 ionotropic and metabotropic glutamate receptor complexes with each other and to the actin-cytoskeleton.

## Selected References for 162 304

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, ICC, IHC; tested species: mouse**

A bidirectional switch in the Shank3 phosphorylation state biases synapses toward up- or downscaling. Wu CH, Tatavirt V, Jean Beltran PM, Guerrero AA, Keshishian H, Krug K, MacMullan MA, Li L, Carr SA, Cottrell JR, Turrigiano GG, et al.  
eLife (2022) 11: . . **WB, IP, ICC; tested species: rat**

Jacob-induced transcriptional inactivation of CREB promotes Aβ-induced synapse loss in Alzheimer's disease. Grochowska KM, Gomes GM, Raman R, Kaushik R, Sosulina L, Kaneko H, Oelschlegel AM, Yuanxiang P, Reyes-Resina I, Bayraktar G, Samer S, et al.  
The EMBO journal (2023) : e112453. . **ICC, IHC; tested species: mouse**

Golgi satellites are essential for polysialylation of NCAM and expression of LTP at distal synapses. Andres-Alonso M, Borgmeyer M, Mirzapoordelavar H, Lormann J, Klein K, Schweizer M, Hoffmeister-Ullrich S, Oelschlegel AM, Dityatev A, Kreutz MR  
Cell reports (2023) 427: 112692. . **ICC, IHC; tested species: mouse**

Multomics of synaptic junctions reveals altered lipid metabolism and signaling following environmental enrichment. Borgmeyer M, Coman C, Has C, Schött HF, Li T, Westhoff P, Cheung YFH, Hoffmann N, Yuanxiang P, Behnisch T, Gomes GM, et al.  
Cell reports (2021) 371: 109797. . **ICC, IHC; tested species: mouse, rat**

Germline AGO2 mutations impair RNA interference and human neurological development. Lessel D, Zeitler DM, Reijnders MRF, Kazantsev A, Hassani Nia F, Bartholomäus A, Martens V, Bruckmann A, Graus V, McConkie-Rosell A, McDonald M, et al.  
Nature communications (2020) 111: 5797. . **WB, ICC; KD verified; tested species: rat**

Chronic Toxoplasma infection is associated with distinct alterations in the synaptic protein composition. Lang D, Schott BH, van Ham M, Morton L, Kulikovskaja L, Herrera-Molina R, Pielot R, Klawonn F, Montag D, Jänsch L, Gundelfinger ED, et al.  
Journal of neuroinflammation (2018) 151: 216. . **WB, IHC; tested species: mouse**

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**

Variants in LRRC7 lead to intellectual disability, autism, aggression and abnormal eating behaviors. Willim J, Woike D, Greene D, Das S, Pfeifer K, Yuan W, Lindsey A, Itani O, Böhme AL, Tibbe D, Hönck HH, et al.  
Nature communications (2024) 151: 7909. . **ICC; tested species: rat**

Multisensory gamma stimulation mitigates the effects of demyelination induced by cuprizone in male mice. Rodrigues-Amorim D, Bozzelli PL, Kim T, Liu L, Gibson O, Yang CY, Murdock MH, Galiana-Melendez F, Schatz B, Davison A, Islam MR, et al.  
Nature communications (2024) 151: 6744. . **IHC; tested species: mouse**

Polar lipids modify Alzheimer's Disease pathology by reducing astrocyte pro-inflammatory signaling through platelet-activating factor receptor (PTAFR) modulation. Hans S, Stanton JE, Sauer AK, Shiels K, Saha SK, Lordan R, Tsoupras A, Zabetakis I, Grabrucker AM  
Lipids in health and disease (2024) 231: 113. . **ICC; tested species: rat**

Access the online factsheet including applicable protocols at <https://sysy.com/product/162304> 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.