SYSY Antibodies

Rudolf-Wissell-Str. 28a
37079 Göttingen, Germany
Phone: +49 551-50556-0
Fax: +49 551-50556-384
E-mail: sales@sysy.com
Web: www.sysy.com

Synapsin1/2

Cat.No. 106 003; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Albumin and azide were added for stabilization. For **reconstitution** add 50 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 : 1000 (AP staining) **IP**: yes **ICC**: 1 : 500 **IHC**: 1 : 500 **IHC-P (FFPE)**: 1 : 500 **DNA-PAINT**: external data (see remarks) **Clarity**: external data (see remarks) **ELISA**: yes (see remarks)
Immunogen	Synthetic peptide corresponding to AA 2 to 28 from rat Synapsin1 (UniProt Id: P09951)
Reactivity	Reacts with: human (P17600, Q92777), rat (P09951, Q63537), mouse (O88935, Q64332), hamster, cow, zebrafish. Other species not tested yet.
Specificity	Specific for synapsins 1a/b and 2a/b. K.O. validated
Matching control	106-0P
Remarks	**DNA-PAINT**: This antibody has been successfully applied and published for this method by customers (see application-specific references). **Clarity**: This antibody has been successfully applied and published for this method by customers (see application-specific references). **ELISA**: The ELISA-protocol for membrane proteins is required. Suitable as detector antibody for sandwich-ELISA. Please refer to the protocol for suitable capture antibodies.

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

Background

Synapsins are neuron-specific phosphoproteins that are exclusively associated with small synaptic vesicles, with little or no expression in other tissues including neuroendocrine cells. In mammals, three distinct synapsin genes (synapsin 1, 2, and 3) encode more than eight neuronal isoforms.
Synapsin 1 is one of the most specific markers of synapses throughout the central and peripheral nervous system. In addition to synaptic nerve terminals, the protein is also present in certain sensory nerve endings. It is expressed in two splice variants (synapsin 1a and synapsin 1b). Synapsin 1 interacts with vesicle membranes as well as with actin and spectrin.
Synapsin 2 is expressed in the nervous system and also two splice variants were described so far, while synapsin 3 shows a more restricted expression pattern and is mainly found in the hypocampus. Synapsins are major phosphoproteins and are substrates for several protein kinases such as PKA, CaMK I and CaMK II. Synapsin 1 is widely used as reference substrate for calmodulin-dependent protein kinases.

Selected References for 106 003

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. . **ICC, IHC; tested species: mouse**

Spatial proteomics in neurons at single-protein resolution.
Unterauer EM, Shetab Boushehri S, Jevdokimenko K, Masullo LA, Ganji M, Sograte-Idrissi S, Kowalewski R, Strauss S, Reinhardt SCM, Perovic A, Marr C, et al.
Cell (2024) 1877: 1785-1800.e16. . **DNA_PAINT; tested species: rat**

CLARITY increases sensitivity and specificity of fluorescence immunostaining in long-term archived human brain tissue.
Woelfle S, Deshpande D, Feldengut S, Braak H, Del Tredici K, Roselli F, Deisseroth K, Michaelis J, Boeckers TM, Schön M
BMC biology (2023) 211: 113. . **CLARITY; tested species: human**

A CRHR1 antagonist prevents synaptic loss and memory deficits in a trauma-induced delirium-like syndrome.
Cursano S, Battaglia CR, Urrutia-Ruiz C, Grabrucker S, Schön M, Bockmann J, Braumüller S, Radermacher P, Roselli F, Huber-Lang M, Boeckers TM, et al.
Molecular psychiatry (2020) : . . **WB; tested species: mouse**

Human adherent cortical organoids in a multi-well format.
van der Kroeg M, Bansal S, Unkel MA, Smeenk H, Kushner SA, de Vrij FMS
eLife (2026) 13: . . **ICC; tested species: human**

Protocol for SUM-PAINT spatial proteomic imaging generating neuronal architecture maps in rat hippocampal neurons.
Unterauer EM, Schentarra EM, Jevdokimenko K, Boushehri SS, Marr C, Opazo F, Fornasiero EF, Jungmann R
STAR protocols (2025) 61: 103637. . **DNA_PAINT; tested species: rat**

3D bioprinting of human neural tissues with functional connectivity.
Yan Y, Li X, Gao Y, Mathivanan S, Kong L, Tao Y, Dong Y, Li X, Bhattacharyya A, Zhao X, Zhang SC, et al.
Cell stem cell (2024) 312: 260-274.e7. . **ICC; tested species: human**

Activity-Dependent Nucleation of Dynamic Microtubules at Presynaptic Boutons Controls Neurotransmission.
Qu X, Kumar A, Blockus H, Waites C, Bartolini F
Current biology : CB (2019) : . . **ICC; tested species: rat**

Loss of X-linked Protocadherin-19 differentially affects the behavior of heterozygous female and hemizygous male mice.
Hayashi S, Inoue Y, Hattori S, Kaneko M, Shioi G, Miyakawa T, Takeichi M
Scientific reports (2017) 71: 5801. . **ICC; tested species: mouse**

Selective Localization of Shanks to VGLUT1-Positive Excitatory Synapses in the Mouse Hippocampus.
Heise C, Schroeder JC, Schoen M, Halbedl S, Reim D, Woelfle S, Kreutz MR, Schmeisser MJ, Boeckers TM
Frontiers in cellular neuroscience (2016) 10: 106. . **IHC**

Access the online factsheet including applicable protocols at https://sysy.com/product/106003 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.