SYSY Antibodies

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Synapsin1/2

Cat.No. 106 004; 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 (AP staining) **IP**: not tested yet **ICC**: 1 : 1000 **IHC**: 1 : 500 **IHC-P (FFPE)**: 1 : 500 up to 1 : 1000
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

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 106 004

Munc13-1 restoration mitigates presynaptic pathology in spinal muscular atrophy.
Moradi M, Weingart J, Deng C, Nasouti M, Briese M, Jablonka S, Sauer M, Sendtner M
Nature communications (2025) 161: 8724. . **WB, ICC; tested species: mouse,human**

Synaptophysin autoantibodies mediate synaptic dysfunction in cerebellar ataxia.
Ho S, Wong HK, Shqau D, Winklmeier S, Grobe-Einsler M, Rostasy K, Kümpfel T, Thaler FS, Brimberg L, Schneider MA, Muley T, et al.
Cell reports. Medicine (2026) : 102822. . **IHC, ICC; tested species: human**

Presynaptic accumulation of APP-CTFβ may contribute to synaptic dysfunction in Alzheimer's disease.
Kapadia A, Schuhmann F, Daskin E, Walter J, Lindahl I, Rahmani N, Morrema THJ, Rozemuller AJM, Boon BDC, Pezeshkian W, Hafner AS, et al.
The EMBO journal (2026) : . . **ELISA; tested species: rat**

An electrophysiological and proteomics roadmap for human induced glutamatergic neurons: fine-tuning of culture conditions for pathophysiological studies.
Servetti M, Parodi G, Caramia M, Nano E, Bartolucci M, Marte A, Mazzoni G, Giubbolini S, Diab F, Petretto A, Valente P, et al.
Cell death discovery (2026) 121: . . **ICC; tested species: human**

1 Hz Low-Frequency Repetitive Transcranial Magnetic Stimulation Ameliorates Epilepsy by Suppressing Interferon-γ Signaling-Dependent Microglial Synaptic Phagocytosis in Mice.
Lin D, Wang D, Xiao N
CNS neuroscience & therapeutics (2026) 326: e70979. . **IHC; tested species: mouse**

Loss of schizophrenia risk gene XPO7 disrupts neuronal excitability and network regularity via altered Na+ channel dynamics in human neurons.
Cui L, Kurganov E, Hawes D, Hornauer P, Lin R, Wang Y, Hierlemann A, Sheng M, Nehme R, Pan JQ
Molecular psychiatry (2026) : . . **ICC; tested species: human**

Nervous System-on-Chip: Innovative Microfluidic Platform to Compartmentalize hiPSC-Derived Neural Networks.
Sabahi-Kaviani R, Gogolou A, Souilhol C, van der Kroeg M, Kushner SA, de Vrij FMS, Tsakiridis A, Luttge R
Micromachines (2026) 172: . . **ICC; tested species: human**

Targeting amyloid-β pathology by chimeric antigen receptor astrocyte (CAR-A) therapy.
Chen Y, Liu Y, Nguyen K, Wu J, Song S, Lin K, Rodrigues PF, Du S, Zhou C, Xiong K, Bosch M, et al.
Science (New York, N.Y.) (2026) 3916789: eads3972. . **IHC; tested species: mouse**

Inflammasome signaling in astrocytes modulates hippocampal plasticity.
Zengeler KE, Hollis A, Deutsch TCJ, Samuels JD, Ennerfelt H, Moore KA, Steacy EJ, Sabapathy V, Sharma R, Patel MK, Lukens JR, et al.
Immunity (2025) 586: 1519-1535.e11. . **IHC; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/106004 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.