SYSY Antibodies

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Synaptophysin1 (p38-1)

Cat.No. 101 002; Polyclonal rabbit antibody, 200 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	200 µl antiserum, lyophilized. For **reconstitution** add 200 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 : 10000 (AP staining) **IP**: yes **ICC**: 1 : 500 up to 1 : 1000 **IHC**: 1 : 500 **IHC-P (FFPE)**: 1 : 200 **DNA-PAINT**: external data (see remarks) **EM**: external data (see remarks) **ELISA**: yes (see remarks)
Immunogen	Synthetic peptide corresponding to residues near the carboxy terminus of human Synaptophysin (UniProt Id: P08247)
Reactivity	Reacts with: human (P08247), rat (P07825), mouse (Q62277), hamster, cow, chicken, frog, zebrafish. Other species not tested yet.
Matching control	101-0P
Remarks	**DNA-PAINT**: This antibody has been successfully applied and published for this method by customers (see application-specific references). **EM**: 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

Synaptophysin1, also referred to as **p38-1**, is a membrane glycoprotein of synaptic vesicles that is ubiquitously expressed in all neurons and in many endocrine cells. It is currently the most widely used marker for nerve terminals and probably the best marker for the pathologist in differentiating neuroendocrine tumors.
Synaptophysin1 has four transmembrane domains with both N- and C-terminus facing the cytoplasm. It binds to synaptobrevin1 and synaptobrevin2 in detergent extracts but its function has not been elucidated completely. It forms a complex with dynamin at high Ca^{2+} concentration suggesting an involvement in synaptic vesicle endocytosis. As typical for synaptic vesicle proteins, synaptophysin1 represents a small protein family with two additonal members, synaptoporin (synaptophysin2) and panthophysin. Like synaptophysin1, synaptoporin is widely expressed in neurons and colocalizes with synaptophysin1 on synaptic vesicles whereas panthophysin is expressed in all tissues.

For more information on protein expression pattern, please refer to the overview image in our SYSY Antibodies ATLAS.

Selected References for 101 002

Colocalization of different neurotransmitter transporters on synaptic vesicles is sparse except for VGLUT1 and ZnT3.
Upmanyu N, Jin J, Emde HV, Ganzella M, Bösche L, Malviya VN, Zhuleku E, Politi AZ, Ninov M, Silbern I, Leutenegger M, et al.
Neuron (2022) : . . **WB, EM, UPTAKE; tested species: rat**

Vesicular Glutamate Transporter 3 Is Involved in Glutamatergic Signalling in Podocytes.
Nishii N, Kawai T, Yasuoka H, Abe T, Tatsumi N, Harada Y, Miyaji T, Li S, Tsukano M, Watanabe M, Ogawa D, et al.
International journal of molecular sciences (2025) 266: . . **WB, ICC, IHC; tested species: mouse,rat**

Regulation of the Hippocampal Network by VGLUT3-Positive CCK- GABAergic Basket Cells.
Fasano C, Rocchetti J, Pietrajtis K, Zander JF, Manseau F, Sakae DY, Marcus-Sells M, Ramet L, Morel LJ, Carrel D, Dumas S, et al.
Frontiers in cellular neuroscience (2017) 11: 140. . **WB, IP; tested species: mouse**

Synaptic vesicle characterization of iPSC-derived dopaminergic neurons provides insight into distinct secretory vesicle pools.
Fujise K, Mishra J, Rosenfeld MS, Rafiq NM
NPJ Parkinson's disease (2025) 111: 16. . **ICC, EM; tested species: human**

Genetically modified E. Coli secreting melanin (E.melanin) activates the astrocytic PSAP-GPR37L1 pathway and mitigates the pathogenesis of Parkinson's disease.
Kong W, Liu Y, Ai P, Bi Y, Wei C, Guo X, Cai Z, Gao G, Hu P, Zheng J, Liu J, et al.
Journal of nanobiotechnology (2024) 221: 690. . **WB, IHC; tested species: mouse**

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**

The phosphoprotein Synapsin Ia regulates the kinetics of dense-core vesicle release.
Yang HJ, Chen PC, Huang CT, Cheng TL, Hsu SP, Chen CY, Lu JC, Wang CT
The Journal of neuroscience : the official journal of the Society for Neuroscience (2021) : . . **WB, ICC**

Coordinated bi-directional trafficking of synaptic vesicle and active zone proteins in peripheral nerves.
Juranek JK, Mukherjee K, Jahn R, Li JY
Biochemical and biophysical research communications (2021) 559: 92-98. . **IHC, EM; tested species: rat**

Uncoupling endosomal CLC chloride/proton exchange causes severe neurodegeneration.
Weinert S, Gimber N, Deuschel D, Stuhlmann T, Puchkov D, Farsi Z, Ludwig CF, Novarino G, López-Cayuqueo KI, Planells-Cases R, Jentsch TJ, et al.
The EMBO journal (2020) : e103358. . **WB, IHC; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/101002 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.