SYSY Antibodies

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Synaptotagmin2 cytoplasmic domain

Cat.No. 105 123; 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**: external data (see remarks) **IHC**: external data (see remarks) **IHC-P (FFPE)**: not tested yet **DNA-PAINT**: external data (see remarks)
Immunogen	Synthetic peptide corresponding to AA 406 to 422 from rat Synaptotagmin2 (UniProt Id: P29101)
Reactivity	Reacts with: human (Q8N9I0), rat (P29101), mouse (P46097). Other species not tested yet.
Matching control	105-12P
Remarks	**ICC**: This antibody has been successfully applied and published for this method by customers (see application-specific references). It is not compatible with our standard protocols. **IHC**: This antibody has been successfully applied and published for this method by customers (see application-specific references). It is not compatible with our standard protocols. **DNA-PAINT**: 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

Synaptotagmin2 is an integral membrane glycoprotein of neuronal synaptic vesicles. It is very similar to synaptotagmin1 but shows a partly complementary expression pattern in the CNS. Synaptotagmin2 lacks a CAMK II/PKC phosphorylation site which is present in synaptotagmin1.
Recently synaptotagmin2 has been shown to be an alternative Ca^{2+} sensor for fast secretion.

Selected References for 105 123

Harnessing synaptic vesicle release and recycling with antibody shuttle for targeted delivery of therapeutics to neurons.
Yee KKL, Kumamoto J, Inomata D, Suzuki N, Harada R, Yumoto N
Molecular therapy. Methods & clinical development (2025) 332: 101476. . **UPTAKE; tested species: human**

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**

Composition of isolated synaptic boutons reveals the amounts of vesicle trafficking proteins.
Wilhelm BG, Mandad S, Truckenbrodt S, Kröhnert K, Schäfer C, Rammner B, Koo SJ, Claßen GA, Krauss M, Haucke V, Urlaub H, et al.
Science (New York, N.Y.) (2014) 3446187: 1023-8. . **ICC; tested species: rat**

Proteomic analysis of wild-type and mutant huntingtin-associated proteins in mouse brains identifies unique interactions and involvement in protein synthesis.
Culver BP, Savas JN, Park SK, Choi JH, Zheng S, Zeitlin SO, Yates JR, Tanese N
The Journal of biological chemistry (2012) 28726: 21599-614. . **WB**

Synaptotagmin IV determines the linear Ca2+ dependence of vesicle fusion at auditory ribbon synapses.
Johnson SL, Franz C, Kuhn S, Furness DN, Rüttiger L, Münkner S, Rivolta MN, Seward EP, Herschman HR, Engel J, Knipper M, et al.
Nature neuroscience (2010) 131: 45-52. . **IHC**

Expression of synaptic proteins and development of dendritic spines in fetal and postnatal neocortex of the pig, the European wild boar Sus scrofa.
Sobierajski E, Czubay K, Schmidt MR, Wiedenski S, Rettschlag S, Beemelmans C, Beemelmans C, Wahle P
Brain structure & function (2025) 2302: 38. . **WB; tested species: pig**

CIRBP regulates mitochondrial respiratory function and modulates neuronal developmental abnormalities induced by perinatal hypoxia.
Guan R, Zou Y, Wang T, Zhu X, Li M, Zhao F, Chen J, Aschner M, Zhang J, Luo W
Free radical biology & medicine (2025) 237: 21-36. . **WB; tested species: mouse**

Chemoproteomics Sheds Light on Epigenetic Targets of [11C]Martinostat in the Human Brain.
Catanese MC, Klingl YE, Gilbert TM, Strebl-Bantillo MG, Hartigan CR, Schenone M, Hooker JM
ACS chemical neuroscience (2025) 164: 723-731. . **WB; tested species: human**

SV2B defines a subpopulation of synaptic vesicles.
Paulussen I, Beckert H, Musial TF, Gschossmann LJ, Wolf J, Schmitt M, Clasadonte J, Mairet-Coello G, Wolff C, Schoch S, Dietrich D, et al.
Journal of molecular cell biology (2023) : . . **WB; tested species: mouse**

Calcium is Reduced in Presynaptic Mitochondria of Motor Nerve Terminals during Neurotransmission in SMA Mice.
Lopez-Manzaneda M, Franco-Espin J, Tejero R, Cano R, Tabares L
Human molecular genetics (2021) : . . **IHC; tested species: mouse**

A High-Resolution Method for Quantitative Molecular Analysis of Functionally Characterized Individual Synapses.
Holderith N, Heredi J, Kis V, Nusser Z
Cell reports (2020) 324: 107968. . **IHC; tested species: rat**

Access the online factsheet including applicable protocols at https://sysy.com/product/105123 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.