SYSY Antibodies

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# Synaptotagmin5/9

**Cat.No. 105 053; 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)<br>**IP**: not tested yet<br>**ICC**: 1 : 500<br>**IHC**: 1 : 500 up to 1 : 1000<br>**IHC-P (FFPE)**: 1 : 500 |
| Immunogen | Recombinant protein corresponding to AA 50 to 108 from mouse Synaptotagmin5 (UniProt Id: Q9R0N5) (UniProt Id: Q9R0N5) |
| Reactivity | Reacts with: rat (P47861), mouse (Q9R0N5).<br>Other species not tested yet. |
| Specificity | Specific for synaptotagmin 5 (UniProt Id: Q9R0N5) sometimes referred to as synaptotagmin 9. Does not detect (UniProt Id: Q9R0N9); K.O. validated PubMed: 37432648 |

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

## Background

Up to now at least 17 synaptotagmins have been identified. Two different synaptotagmins were independently termed **synaptotagmin5** by two research groups (see Li et al., 1995 and Craxton & Goeder, 1995). The groups refer to the respective other protein as **synaptotagmin9**. The synaptotagmin described by Craxton & Goeder is expressed in different tissues like kidney, heart, lung and adipose tissue but shows its highest expression level in brain, where it predominantly locates to an enriched synaptic vesicle fraction. Like other synaptotagmins it contains one transmembrane and two cytosolic C2 domains.

## Selected References for 105 053

Axonal and dendritic synaptotagmin isoforms revealed by a pHluorin-syt functional screen.
Dean C, Dunning FM, Liu H, Bomba-Warczak E, Martens H, Bharat V, Ahmed S, Chapman ER
Molecular biology of the cell (2012) 239: 1715-27. . **WB, ICC**

Genetic ablation of synaptotagmin-9 alters tomosyn-1 function to increase insulin secretion from pancreatic β-cells improving glucose clearance.
Rahman MM, Pathak A, Schueler KL, Alsharif H, Michl A, Alexander J, Kim JA, Bhatnagar S
FASEB journal : official publication of the Federation of American Societies for Experimental Biology (2023) 378: e23075. . **WB, ICC; KO verified; tested species: mouse**

Synaptotagmin 9 Modulates Spontaneous Neurotransmitter Release in Striatal Neurons by Regulating Substance P Secretion.
Seibert MJ, Evans CS, Stanley KS, Wu Z, Chapman ER
The Journal of neuroscience : the official journal of the Society for Neuroscience (2023) 439: 1475-1491. . **WB, ICC; KO verified; tested species: mouse**

GABAergic-like dopamine synapses in the brain.
Kim HJ, Hwang B, Reva M, Lee J, Lee BE, Lee Y, Cho EJ, Jeong M, Lee SE, Myung K, Baik JH, et al.
Cell reports (2023) 4210: 113239. . **IHC; tested species: mouse**

Distinct modes of dopamine modulation on striatopallidal synaptic transmission.
Lee YL, Reva M, Kim KJ, Kim HJ, Kim Y, Cho E, Jeong M, Kwak Y, Myung K, Li Y, Lee SE, et al.
Nature communications (2026) 171: . . **IHC; tested species: mouse**

The synaptic ectokinase VLK triggers the EphB2-NMDAR interaction to drive injury-induced pain.
Srikanth KD, Elahi H, Chander P, Washburn HR, Hassler S, Mwirigi JM, Kume M, Loucks J, Arjarapu R, Hodge R, He L, et al.
Science (New York, N.Y.) (2025) 3906775: eadp1007. . **WB; tested species: mouse**

Palmitoylation couples insulin hypersecretion with β cell failure in diabetes.
Dong G, Adak S, Spyropoulos G, Zhang Q, Feng C, Yin L, Speck SL, Shyr Z, Morikawa S, Kitamura RA, Kathayat RS, et al.
Cell metabolism (2023) : . . **WB; tested species: rat**

Synaptotagmin oligomerization is essential for calcium control of regulated exocytosis.
Bello OD, Jouannot O, Chaudhuri A, Stroeva E, Coleman J, Volynski KE, Rothman JE, Krishnakumar SS
Proceedings of the National Academy of Sciences of the United States of America (2018) 11532: E7624-E7631. . **WB; tested species: rat**

A novel method for culturing stellate astrocytes reveals spatially distinct Ca2+ signaling and vesicle recycling in astrocytic processes.
Wolfes AC, Ahmed S, Awasthi A, Stahlberg MA, Rajput A, Magruder DS, Bonn S, Dean C
The Journal of general physiology (2017) 1491: 149-170. . **WB**

Sex-specific regulation of follicle-stimulating hormone secretion by synaptotagmin 9.
Roper LK, Briguglio JS, Evans CS, Jackson MB, Chapman ER
Nature communications (2015) 6: 8645. . **ICC**

## Selected General References

Ca(2+)-dependent and -independent activities of neural and non-neural synaptotagmins.
Li C et al. Nature (1995) PubMed:7791877

Access the online factsheet including applicable protocols at https://sysy.com/product/105053 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.