

## 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 <b>reconstitution</b> add 50 µl H <sub>2</sub> O 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	<b>WB:</b> 1 : 1000 (AP staining) <b>IP:</b> not tested yet <b>ICC:</b> 1 : 500 <b>IHC:</b> 1 : 500 up to 1 : 1000 <b>IHC-P:</b> 1 : 500
Immunogen	Recombinant protein corresponding to AA 50 to 108 from mouse Synaptotagmin5 (UniProt Id: <a href="#">Q9R0N5</a> ) (UniProt Id: Q9R0N5)
Reactivity	Reacts with: rat (P47861), mouse (Q9R0N5). Other species not tested yet.
Specificity	Specific for synaptotagmin 5 (UniProt Id: <a href="#">Q9R0N5</a> ) sometimes referred to as synaptotagmin 9. Does not detect (UniProt Id: <a href="#">Q9R0N9</a> ); K.O. validated PubMed: <a href="#">37432648</a>

**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**

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

Synaptotagmin V and IX isoforms control Ca<sup>2+</sup> -dependent insulin exocytosis.  
Iezzi M et al. J. Cell. Sci. (2004) PubMed:15190121

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 our antibodies and control proteins / peptides are shipped lyophilized (vacuum freeze-dried) and are stable in this form 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. **They must not be stored in the freezer when still lyophilized!** Temperatures below zero may cause loss of performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long term storage (several months) may lead to aggregation.
- **Control peptides** should be kept at -20°C before reconstitution.

### Long Term Storage after Reconstitution (General Considerations)

- The storage freezer must not be of the frost-free variety ("no-frost freezer"). This cycle between freezing and thawing (to reduce frost-build-up), which is exactly what should be avoided. For the same reason, antibody vials should be placed in an area of the freezer that has minimal temperature fluctuations, for instance towards the back rather than on a door shelf.
- Aliquot the antibody and store frozen (-20°C to -80°C). Avoid very small aliquots (below 20 µl) and use the smallest storage vial or tube possible. The smaller the aliquot, the more the stock concentration is affected by evaporation and adsorption of the antibody to the surface of the storage vial or tube. Adsorption of the antibody to the surface leads to a substantial loss of activity.
- The addition of glycerol to a final concentration of 50% lowers the freezing point of your stock and keeps your antibody at -20°C in liquid state. This efficiently avoids freeze and thaw cycles.

### Product Specific Hints for Storage

#### Control proteins / peptides

- Store at -20°C to -80°C.

#### Monoclonal Antibodies

- **Ascites** and **hybridoma supernatant** should be stored at -20°C up to -80°C. **Prolonged storage at 4°C is not recommended!** Unlike serum, ascites may contain proteases that will degrade the antibodies.
- **Purified IgG** should be stored at -20°C up to -80°C. Adding a carrier protein like BSA will increase long term stability. Many of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

#### Polyclonal Antibodies

- **Crude antisera:** With anti-microbials added, they may be stored at 4°C. However, frozen storage (-20°C up to -80°C) is preferable.
- **Affinity purified antibodies:** Less robust than antisera. Storage at -20°C up to -80°C is recommended. Adding a carrier protein like BSA will increase long term stability. Most of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

#### Fluorescence-labeled Antibodies

- Store as a liquid with 1 : 1 (v/v) glycerol at -20°C. Protect these antibodies from light exposure.

## Avoid repeated freeze-thaw cycles for all antibodies!

## FAQ - How should I reconstitute my antibody?

### Reconstitution

- All our purified antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the amount of deionized water given in the respective datasheet. If higher volumes are preferred, add water as mentioned above and then the desired amount of PBS and a stabilizing carrier protein (e.g. BSA) to a final concentration of 2%. Some of our antibodies already contain albumin. Take this into account when adding more carrier protein. For complete reconstitution, carefully remove the lid. After adding water, briefly vortex the solution. You can spin down the liquid by placing the vial into a 50 ml centrifugation tube filled with paper.
- If desired, add small amounts of azide or thimerosal to prevent microbial growth. This is especially recommended if you want to keep an aliquot at 4°C.
- After reconstitution of fluorescence-labeled antibodies, add 1 : 1 (v/v) glycerol to a final concentration of 50%. This lowers the freezing point of your stock and keeps your antibody in liquid state at -20°C.
- Glycerol may also be added to unlabeled primary antibodies. It is a suitable way to avoid freeze-thaw cycles.
- Please refer to our **tips and hints for subsequent storage** of reconstituted antibodies and control peptides and proteins.