

## Synaptotagmin1 luminal domain

Cat.No. 105 102; Polyclonal rabbit antibody, 200 µl antiserum (lyophilized)

### Data Sheet

Reconstitution/ Storage	200 µl antiserum, lyophilized. For <b>reconstitution</b> add 200 µl H <sub>2</sub> O, 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	<b>WB:</b> 1 : 1000 (AP staining) <b>IP:</b> yes <b>ICC:</b> 1 : 100 (see remarks) <b>IHC:</b> 1 : 500 <b>IHC-P:</b> not tested yet
Immunogen	Synthetic peptide corresponding to AA 1 to 8 from mouse Synaptotagmin1 (UniProt Id: P46096)
Reactivity	Reacts with: rat (P21707), mouse (P46096). Other species not tested yet.  For unknown reasons antibodies raised against the luminal N-terminus of Synaptotagmin 1 show a strong preference for the rat protein.
Matching control	105-10P
Remarks	<b>ICC:</b> This antibody is intended to be used for <a href="#">direct labeling of recycling synapses</a> in primary neuronal cultures.

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

### Background

**Synaptotagmin1**, also known as **p65**, is an integral membrane glycoprotein of neuronal synaptic vesicles and secretory granules of neuroendocrine cells that is widely (but not ubiquitously) expressed in the central and peripheral nervous system. It has a variable N-terminal domain that is exposed to the lumen of the vesicle and a conserved cytoplasmic tail that contains two Ca<sup>2+</sup>-binding C2-domains. Ca<sup>2+</sup>-binding to synaptotagmin triggers exocytosis of synaptic vesicles, thus linking Ca<sup>2+</sup>-influx during depolarization to neurotransmitter release.

Luminal antibodies were used in living neurons to label synaptic vesicles from the outside via endocytotic uptake.

### Selected References for 105 102

- 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, Hauke V, Urlaub H, et al. *Science (New York, N.Y.)* (2014) 3446187: 1023-8. . **ICC, IHC; tested species: mouse**
- Synaptogyrin-3 Mediates Presynaptic Dysfunction Induced by Tau. McInnes J, Wierda K, Snellinx A, Bounti L, Wang YC, Stancu IC, Apóstolo N, Gevaert K, Dewachter I, Spires-Jones TL, De Strooper B, et al. *Neuron* (2018) 974: 823-835.e8. . **WB; tested species: mouse**
- A novel non-canonical Notch signaling regulates expression of synaptic vesicle proteins in excitatory neurons. Hayashi Y, Nishimune H, Hozumi K, Saga Y, Harada A, Yuzaki M, Iwatsubo T, Kopan R, Tomita T *Scientific reports* (2016) 6: 23969. . **UPTAKE; tested species: mouse**
- Correlation between evoked neurotransmitter release and adaptive functions in SYT1-associated neurodevelopmental disorder. Park PY, Bleakley LE, Saraya N, Al-Jawahiri R, Eck J, Aloji MA, Melland H, Baker K, Gordon SL *EBioMedicine* (2024) 109: 105416. . **ICC; tested species: mouse**
- SV2B defines a subpopulation of synaptic vesicles. Paulussen I, Beckert H, Musial TF, Gschossman LJ, Wolf J, Schmitt M, Clasadonte J, Mairat-Coello G, Wolff C, Schoch S, Dietrich D, et al. *Journal of molecular cell biology* (2023) : . . **WB; tested species: mouse**
- Clathrin-independent endocytic retrieval of SV proteins mediated by the clathrin adaptor AP-2 at mammalian central synapses. López-Hernández T, Takenaka KI, Mori Y, Kongpracha P, Nagamori S, Hauke V, Takamori S *eLife* (2022) 11: . . **ICC; tested species: mouse**
- miR-128 as a Regulator of Synaptic Properties in 5xFAD Mice Hippocampal Neurons. Shvarts-Serebro I, Sheinin A, Gottfried I, Adler L, Schottlender N, Ashery U, Barak B *Journal of molecular neuroscience : MN* (2021) : . . **WB; tested species: mouse**
- Rho-kinase inhibition by fasudil modulates pre-synaptic vesicle dynamics. Saal KA, Warth Pérez Arias C, Roser AE, Christoph Koch J, Bähr M, Rizzoli SO, Lingor P *Journal of neurochemistry* (2020) : . . **WB; tested species: rat**
- Auxiliary  $\alpha 2\delta 1$  and  $\alpha 2\delta 3$  Subunits of Calcium Channels Drive Excitatory and Inhibitory Neuronal Network Development. Bikbaev A, Ciurasczkiewicz-Wojciech A, Heck J, Klatt O, Freund R, Mitlöchner J, Enrile Lacalle S, Sun M, Repetto D, Frischknecht R, Ablinger C, et al. *The Journal of neuroscience : the official journal of the Society for Neuroscience* (2020) 4025: 4824-4841. . **WB; tested species: mouse**
- CtBP1-Mediated Membrane Fission Contributes to Effective Recycling of Synaptic Vesicles. Ivanova D, Imig C, Camacho M, Reinhold A, Guhathakurta D, Montenegro-Venegas C, Cousin MA, Gundelfinger ED, Rosenmund C, Cooper B, Fejtova A, et al. *Cell reports* (2020) 307: 2444-2459.e7. . **WB; tested species: mouse**

Access the online factsheet including applicable protocols at <https://sysy.com/product/105102> 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 a 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.