

Synaptotagmin2 luminal domain

Cat.No. 105 223; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Albumin was added for stabilization. For reconstitution add 50 µl H ₂ 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	WB: 1 : 1000 (AP staining) IP: yes ICC: 1 : 100 (see remarks) IHC: 1 : 500 IHC-P: not tested yet
Immunogen	Synthetic peptide corresponding to AA 1 to 11 from mouse Synaptotagmin2 (UniProt Id: P46097)
Reactivity	Reacts with: rat (P29101), mouse (P46097). Other species not tested yet.
Remarks	ICC: This antibody is intended to be used for direct labeling of recycling synapses in primary neuronal cultures.

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 Ca²⁺ sensor for fast secretion.

Selected References for 105 223

- Control of exocytosis by synaptotagmins and otoferlin in auditory hair cells.
Beurg M, Michalski N, Safieddine S, Bouleau Y, Schneggenburger R, Chapman ER, Petit C, Dulon D
The Journal of neuroscience : the official journal of the Society for Neuroscience (2010) 3040: 13281-90. . **IHC; tested species: rat**
- The complement inhibitor CD59 is required for GABAergic synaptic transmission in the dentate gyrus.
Wen L, Yang X, Wu Z, Fu S, Zhan Y, Chen Z, Bi D, Shen Y
Cell reports (2023) 424: 112349. . **IHC; tested species: mouse**
- The proteomic landscape of synaptic diversity across brain regions and cell types.
van Oostrum M, Blok TM, Giandomenico SL, Tom Dieck S, Tushev G, Fürst N, Langer JD, Schuman EM
Cell (2023) 18624: 5411-5427.e23. . **IHC; tested species: mouse**
- Chronic partial TrkB activation reduces seizures and mortality in a mouse model of Dravet syndrome.
Gu F, Parada I, Yang T, Longo FM, Prince DA
Proceedings of the National Academy of Sciences of the United States of America (2022) 1197: . . **IHC; tested species: mouse**
- Myelination synchronizes cortical oscillations by consolidating parvalbumin-mediated phasic inhibition.
Dubey M, Pascual-Garcia M, Helmes K, Wever DD, Hamada MS, Kushner SA, Kole MHP
eLife (2022) 11: . . **IHC; tested species: mouse**
- ROCK/PKA inhibition rescues hippocampal hyperexcitability and GABAergic neuron alterations in Oligophrenin-1 Knock-out mouse model of X-linked intellectual disability.
Busti I, Allegra M, Spalletti C, Panzi C, Restani L, Billuart P, Caleo M
The Journal of neuroscience : the official journal of the Society for Neuroscience (2020) : . . **IHC; tested species: mouse**
- Inositol polyphosphate multikinase deficiency leads to aberrant induction of synaptotagmin-2 in the forebrain.
Park J, Park SJ, Kim S
Molecular brain (2019) 121: 58. . **IHC; tested species: mouse**

Selected General References

- Synaptotagmin-2 is essential for survival and contributes to Ca²⁺ triggering of neurotransmitter release in central and neuromuscular synapses.
Pang ZP et al. J. Neurosci. (2006) PubMed:17192432
- Genetic analysis of synaptotagmin 2 in spontaneous and Ca²⁺-triggered neurotransmitter release.
Pang ZP et al. EMBO J. (2006) PubMed:16642042
- WNK1 phosphorylates synaptotagmin 2 and modulates its membrane binding.
Lee BH et al. Mol. Cell (2004) PubMed:15350218
- Synaptotagmin II could confer Ca²⁺ sensitivity to phagocytosis in human neutrophils.
Lindmark IM et al. Biochim. Biophys. Acta (2002) PubMed:12063179
- Amino acid residues before the hydrophobic region which are critical for membrane translocation of the N-terminal domain of synaptotagmin II.
Kida Y et al. FEBS Lett. (2001) PubMed:11696368

Access the online factsheet including applicable protocols at <https://sysy.com/product/105223> 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.