

Syntaxin1A

Cat.No. 110 302; Polyclonal rabbit antibody, 200 µl antiserum (lyophilized)

Data Sheet

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|----------------------------|---|
| Reconstitution/ Storage | 200 µl antiserum, lyophilized. For reconstitution add 200 µl H ₂ 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 | WB: 1 : 1000 (AP staining) IP: yes ICC: 1 : 100 IHC: not tested yet IHC-P: not tested yet ELISA: yes (see remarks) |
| Immunogen | Synthetic peptide corresponding to AA 172 to 189 from rat Syntaxin1A (UniProt ID: P32851) |
| Reactivity | Reacts with: human (Q16623), rat (P32851), mouse (O35526), cow. No signal: zebrafish. Other species not tested yet. |
| Specificity | Specific for syntaxin 1A, no cross reactivity to syntaxin 1B. K.O. validated PubMed: 28031464 |
| Remarks | ELISA: Suitable as detector antibody for sandwich-ELISA with cat. no. 110 011 as capture antibodies. The ELISA-protocol for membrane proteins is recommended. |

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

Background

Syntaxin 1, also known as **p35**, is a small integral membrane protein that is abundantly expressed in neurons and neuroendocrine cells. It was initially discovered as HPC-1. Syntaxin 1 is an essential component of the exocytotic fusion machine and interacts with several other proteins important for synaptic function, including its partners in the fusion complex synaptobrevin, SNAP 25, α-SNAP, synaptotagmin 1, Munc 18/n-Sec1 and Ca²⁺-channels.

Syntaxin 1 is localized primarily to the neuronal plasmalemma and is concentrated in synapses where pools of the protein are also present on recycling organelles including synaptic vesicles. It is the main target of one of the Botulinum neurotoxins BoNT/C1 which, however, cannot cleave the protein when complexed with its partner proteins in the fusion complex.

Selected References for 110 302

Munc18-1 controls SNARE protein complex assembly during human sperm acrosomal exocytosis. Rodríguez F, Zanetti MN, Mayorga LS, Tomes CN
The Journal of biological chemistry (2012) 28752: 43825-39. **WB, ICC; tested species: human**

New Roles of Syntaxin-1A in Insulin Granule Exocytosis and Replenishment. Liang T, Qin T, Xie L, Dolai S, Zhu D, Prentice KJ, Wheeler M, Kang Y, Osborne L, Gaisano HY
The Journal of biological chemistry (2017) 2926: 2203-2216. **WB, IHC; KO verified; tested species: mouse**

Point mutation in syntaxin-1A causes abnormal vesicle recycling, behaviors, and short term plasticity. Watanabe Y, Katayama N, Takeuchi K, Togano T, Itoh R, Sato M, Yamazaki M, Abe M, Sato T, Oda K, Yokoyama M, et al.
The Journal of biological chemistry (2013) 28848: 34906-19. **WB, IP; tested species: mouse**

Syntaxin regulates neuronal excitation/inhibition balance and epileptic seizures by transporting syntaxin 1B. Ke P, Gu J, Liu J, Liu Y, Tian X, Ma Y, Meng Y, Xiao F
Cell death discovery (2023) 91: 187. **WB, IP; tested species: mouse**

Plasma membrane flipping of Syntaxin-2 regulates its inhibitory action on insulin granule exocytosis. Kang F, Xie L, Qin T, Miao Y, Kang Y, Takahashi T, Liang T, Xie H, Gaisano HY
Nature communications (2022) 131: 6512. **IP, WB; tested species: human, mouse**

Ectopic expression of syntaxin 1 in the ER redirects TI-VAMP- and cellubrevin-containing vesicles. Martinez-Arca S, Proux-Gillardeaux V, Alberts P, Louvard D, Galli T
Journal of cell science (2003) 116Pt 13: 2805-16. **WB, ICC**

Disrupting stroke-induced GAT-1-syntaxin1A interaction promotes functional recovery after stroke. Lin YH, Wu F, Li TY, Lin L, Gao F, Zhu LJ, Xu XM, Chen MY, Hou YL, Zhang CJ, Wu HY, et al.
Cell reports. Medicine (2024) 511: 101789. **WB; tested species: mouse**

Analysis of the neuromuscular deficits caused by STAM1 deficiency. McLean JW, VanHart M, McWilliams MP, Farmer CB, Crossman DK, Cowell RM, Wilson JA, Wilson SM
Current research in neurobiology (2024) 7: 100138. **WB; tested species: mouse**

α-Synuclein induced cholesterol lowering increases tonic and reduces depolarization-evoked synaptic vesicle recycling and glutamate release.

Lazarevic V, Yang Y, Paslawski W, Svenningsson P
NPJ Parkinson's disease (2022) 81: 71. **ICC; tested species: mouse**

A novel synaptopathy-defective synaptic vesicle protein trafficking in the mutant CHMP2B mouse model of frontotemporal dementia.

Clayton EL, Bonnycastle K, Isaacs AM, Cousin MA, Schorge S
Journal of neurochemistry (2022) 1603: 412-425. **WB; tested species: mouse**

Synaptotagmin-1 interacts with PI(4,5)P2 to initiate synaptic vesicle docking in hippocampal neurons. Chen Y, Wang YH, Zheng Y, Li M, Wang B, Wang QW, Fu CL, Liu YN, Li X, Yao J
Cell reports (2021) 3411: 108842. **ICC; tested species: mouse**

Access the online factsheet including applicable protocols at <https://sysy.com/product/110302> 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.