

Syntaxin1A

Cat.No. 110 111; Monoclonal mouse antibody, 100 µg purified IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µg purified IgG, lyophilized. Albumin and azide were added for stabilization. For reconstitution add 100 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 up to 1 : 10000 (AP staining) IP: yes ICC: 1 : 200 up to 1 : 1000 IHC: 1 : 500 (see remarks) IHC_P: 1 : 500 DNA_PAINT: yes EM: yes
Clone	78.3
Subtype	IgG2a (κ light chain)
Immunogen	Recombinant protein corresponding to cytoplasmic-domain without membrane anchor of rat Syntaxin 1A. (UniProt Id: P32851)
Reactivity	Reacts with: human (Q16623), rat (P32851), mouse (O35526), mammals, chicken. Other species not tested yet.
Specificity	Specific for syntaxin 1A, no cross-reactivity to syntaxin 1B. K.O. PubMed: 38512129
Matching control	110-1P
Remarks	Immunoprecipitates syntaxin 1A including complexes with synaptobrevin and SNAP 25. IHC: Heat-mediated antigen retrieval (in citrate buffer pH 6) is required for immunohistochemical staining.

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 110 111

Syntaxin 8 impairs trafficking of cystic fibrosis transmembrane conductance regulator (CFTR) and inhibits its channel activity. Bilan F, Thoreau V, Nacfer M, Dérand R, Norez C, Cantereau A, Garcia M, Becq F, Kitzis A. *Journal of cell science* (2004) 117Pt 10: 1923-35. . **WB, ICC**

MAFA and MAFB regulate exocytosis-related genes in human β-cells. Cataldo LR, Singh T, Achanta K, Bsharat S, Prasad RB, Luan C, Renström E, Eliasson L, Artner I. *Acta physiologica (Oxford, England)* (2022) 2342: e13761. . **WB, IHC; tested species: mouse**

Syntaxin 4 is concentrated on plasma membrane of astrocytes. Tao-Cheng JH, Pham A, Yang Y, Winters CA, Gallant PE, Reese TS. *Neuroscience* (2015) 286: 264-71. . **WB, EM**

SNARE-catalyzed fusion events are regulated by Syntaxin1A-lipid interactions. Lam AD, Tryoen-Toth P, Tsai B, Vitale N, Stuenkel EL. *Molecular biology of the cell* (2008) 192: 485-97. . **WB, IP; tested species: rat**

The stability of the primed pool of synaptic vesicles and the clamping of spontaneous neurotransmitter release rely on the integrity of the C-terminal half of the SNARE domain of syntaxin-1A. Salazar Lázaro A, Trimbuch T, Vardar G, Rosenmund C. *eLife* (2024) 12: . . **WB, ICC; KO verified; tested species: mouse**

The lipid transporter ORP2 regulates synaptic neurotransmitter release via two distinct mechanisms. Weber-Boyvat M, Kroll J, Trimbuch T, Olkkonen VM, Rosenmund C. *Cell reports* (2022) 4113: 111882. . **WB, IP; tested species: mouse**

SV31 is a Zn²⁺-binding synaptic vesicle protein. Barth J, Zimmermann H, Volkandt W. *Journal of neurochemistry* (2011) 1184: 558-70. . **WB, ICC**

The R-SNARE motif of tomosyn forms SNARE core complexes with syntaxin 1 and SNAP-25 and down-regulates exocytosis. Hatsuzawa K, Lang T, Fasshauer D, Bruns D, Jahn R. *The Journal of biological chemistry* (2003) 27833: 31159-66. . **WB, ICC**

Lipopolysaccharide augments microglial GABA uptake by increasing GABA transporter-1 trafficking and bestrophin-1 expression.

Di Palma M, Catalano M, Serpe C, De Luca M, Monaco L, Kunzelmann K, Limatola C, Conti F, Fattorini G. *Glia* (2023) 7111: 2527-2540. . **DNA_PAINT; tested species: mouse**

Hippocampal excitation-inhibition balance underlies the 5-HT_{2C} receptor in modulating depressive behaviours. Shi HJ, Xue YR, Shao H, Wei C, Liu T, He J, Yang YH, Wang HM, Li N, Ren SQ, Chang L, et al. *Brain : a journal of neurology* (2024) : . . **WB; tested species: mouse**

Liprin-α proteins are master regulators of human presynapse assembly. Marcó de la Cruz B, Campos J, Molinaro A, Xie X, Jin G, Wei Z, Acuna C, Sterky FH. *Nature neuroscience* (2024) : . . **WB; tested species: human**

Access the online factsheet including applicable protocols at <https://sysy.com/product/110111> 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.