

Syntaxin 1A

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

Data Sheet

Reconstitution/ Storage	100 µg purified IgG, lyophilized. For reconstitution add 100 µl H ₂ O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C until use.
Applications	WB: 1 : 1000 up to 1 : 10000 (AP staining) IP: yes ICC: 1 : 200 up to 1 : 1000 IHC: not recommended IHC-P/FFPE: 1 : 500 EM: yes
Clone	78.3
Subtype	IgG2a (κ light chain)
Immunogen	Recombinant protein corresponding to AA 1 to 262 from rat Syntaxin1A (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. verified)
matching control	110-1P
Remarks	Immunoprecipitates syntaxin 1A including complexes with synaptobrevin and SNAP 25.

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

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 exocytic 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 SYSY Antibodies

- Syntaxin 8 impairs trafficking of cystic fibrosis transmembrane conductance regulator (CFTR) and inhibits its channel activity.
 Bilan F, Thoreau V, Nacfer M, Dérard R, Norez C, Cantereau A, Garcia M, Becq F, Kitzis A
Journal of cell science (2004) 117(Pt 10): 1923-35. **WB, ICC**
- 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) 19(2): 485-97. **WB, IP; tested species: rat**
- SV31 is a Zn²⁺-binding synaptic vesicle protein.
 Barth J, Zimmermann H, Volkhardt W
Journal of neurochemistry (2011) 118(4): 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) 278(33): 31159-66. **WB, ICC**
- CRISPR interference-based specific and efficient gene inactivation in the brain.
 Zheng Y, Shen W, Zhang J, Yang B, Liu YN, Qi H, Yu X, Lu SY, Chen Y, Xu YZ, Li Y, et al.
Nature neuroscience (2018) 21(3): 447-454. **WB; KD verified; tested species: mouse**
- Plekhi5-regulated autophagy of synaptic vesicles reveals a pathogenic mechanism in motoneuron disease.
 Lüningschrör P, Binotti B, Dombert B, Heimann P, Perez-Lara A, Slotta C, Thau-Habermann N, R von Collenberg C, Karl F, Damme M, Horowitz A, et al.
Nature communications (2017) 8(1): 678. **WB**
- Analysis of SUMO1-conjugation at synapses.
 Daniel JA, Cooper BH, Palvimo JJ, Zhang FP, Brose N, Tirard M
eLife (2017) 6: . **WB; tested species: mouse**
- Vesicular Synaptobrevin/VAMP2 Levels Guarded by AP180 Control Efficient Neurotransmission.
 Koo SJ, Kochlamazashvili G, Rost B, Puchkov D, Gimber N, Lehmann M, Tadeus G, Schmoranz J, Rosenmund C, Haucke V, Maritzen T, et al.
Neuron (2015) 88(2): 330-44. **WB; tested species: mouse**
- Small-scale isolation of synaptic vesicles from mammalian brain.
 Ahmed S, Holt M, Riedel D, Jahn R
Nature protocols (2013) 8(5): 998-1009. **WB; tested species: mouse**
- Chronic psychosocial stress and citalopram modulate the expression of the glial proteins GFAP and NDRG2 in the hippocampus.
 Araya-Callís C, Hiemke C, Abumaria N, Flugge G
Psychopharmacology (2012) 224(1): 209-22. **WB; tested species: rat**
- Extensive remodeling of the presynaptic cytoskeleton upon homeostatic adaptation to network activity silencing.
 Lazarevic V, Schöne C, Heine M, Gundelfinger ED, Fejtová A
The Journal of neuroscience : the official journal of the Society for Neuroscience (2011) 31(28): 10189-200. **WB**
- Syntaxin1A lateral diffusion reveals transient and local SNARE interactions.
 Ribraut C, Reingruber J, Petković M, Galli T, Ziv NE, Holcman D, Triller A
The Journal of neuroscience : the official journal of the Society for Neuroscience (2011) 31(48): 17590-602. **ICC; tested species: rat**
- A role for the ubiquitin-proteasome system in activity-dependent presynaptic silencing.
 Jiang X, Litkowski PE, Taylor AA, Lin Y, Snider BJ, Moulder KL
The Journal of neuroscience : the official journal of the Society for Neuroscience (2010) 30(5): 1798-809. **ICC**
- A novel site of action for alpha-SNAP in the SNARE conformational cycle controlling membrane fusion.
 Barszczewski M, Chua JJ, Stein A, Winter U, Heintzmann R, Zilly FE, Fasshauer D, Lang T, Jahn R
Molecular biology of the cell (2008) 19(3): 776-84. **ICC**
- The interaction between syntaxin 1A and cystic fibrosis transmembrane conductance regulator Cl- channels is mechanistically distinct from syntaxin 1A-SNARE interactions.
 Ganeshan R, Di A, Nelson DJ, Quick MW, Kirk KL
The Journal of biological chemistry (2003) 278(5): 2876-85. **WB**
- Total arrest of spontaneous and evoked synaptic transmission but normal synaptogenesis in the absence of Munc13-mediated vesicle priming.
 Varoqueaux F, Sigler A, Rhee JS, Brose N, Enk C, Reim K, Rosenmund C
Proceedings of the National Academy of Sciences of the United States of America (2002) 99(13): 9037-42. **WB**