

Synaptotagmin 1 luminal domain

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

Data Sheet

Reconstitution/ Storage	200 µl antiserum, lyophilized. For reconstitution add 200 µl H ₂ O, then aliquot and store at -20°C until use.
Applications	WB: 1 : 1000 (AP staining) IP: yes ICC: 1 : 100 IHC: 1 : 500 IHC-P/FFPE: yes
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.
Specificity	Specific for synaptotagmin 1, no cross-reactivity to synaptotagmin 2.
matching control	105-10P
Remarks	This antibody can be used for labeling of recycling synaptic vesicles by adding to living neurons or as a marker for exocytosis in isolated nerve terminals.

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

Synaptotagmin 1 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 Ca²⁺-binding C2-domains. Ca²⁺-binding to synaptotagmin triggers exocytosis of synaptic vesicles, thus linking Ca²⁺-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 SYSY Antibodies

Composition of isolated synaptic boutons reveals the amounts of vesicle trafficking proteins. Wilhelm BG, Mandat S, Truckenbrodt S, Kröhnert K, Schäfer C, Rammner B, Koo SJ, Claßen GA, Krauss M, Haucke V, Urlaub H, et al. Science (New York, N.Y.) (2014) 344(6187): 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) 97(4): 823-835.e8. **WB; tested species: mouse**

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Newly produced synaptic vesicle proteins are preferentially used in synaptic transmission. Truckenbrodt S, Viplav A, Jähne S, Vogts A, Denker A, Wildhagen H, Fornasiero EF, Rizzoli SO The EMBO journal (2018) : . **ICC; tested species: rat**

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Afadin regulates puncta adherentia junction formation and presynaptic differentiation in hippocampal neurons. Toyoshima D, Mandai K, Maruo T, Supriyanto I, Togashi H, Inoue T, Mori M, Takai Y PloS one (2014) 9(2): e89763. **ICC; tested species: mouse**

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The neural cell adhesion molecule promotes maturation of the presynaptic endocytotic machinery by switching synaptic vesicle recycling from adaptor protein 3 (AP-3)- to AP-2-dependent mechanisms. Shetty A, Sytnyk V, Leshchyn'ska I, Puchkov D, Haucke V, Schachner M The Journal of neuroscience : the official journal of the Society for Neuroscience (2013) 33(42): 16828-45. **ICC; tested species: mouse**

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Unique luminal localization of VGAT-C terminus allows for selective labeling of active cortical GABAergic synapses. Martens H, Weston MC, Boulland JL, Grønborg M, Grosche J, Kacza J, Hoffmann A, Matteoli M, Takamori S, Harkany T, Chaudhry FA, et al. The Journal of neuroscience : the official journal of the Society for Neuroscience (2008) 28(49): 13125-31. **WB; tested species: rat**

Selected General References

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The synaptic vesicle cycle: a cascade of protein-protein interactions. Südhof TC Nature (1995) 375(6533): 645-53.

Synaptic vesicles and exocytosis. Jahn R, Südhof TC Annual review of neuroscience (1994) 17: 219-46.

Synaptotagmin I: a major Ca²⁺ sensor for transmitter release at a central synapse. Geppert M, Goda Y, Hammer RE, Li C, Rosahl TW, Stevens CF, Südhof TC Cell (1994) 79(4): 717-27.

Synaptotagmin: a calcium sensor on the synaptic vesicle surface. Brose N, Petrenko AG, Südhof TC, Jahn R Science (New York, N.Y.) (1992) 256(5059): 1021-5.