

Synaptotagmin 1 luminal domain

Cat.No. 105 311C3; Monoclonal mouse antibody, 100 µg purified IgG (lyophilized)

Data Sheet

Reconstitution/Storage	100 µg purified IgG, lyophilized, fluorescence-labeled with Sulfo-Cyanine 3. Rabbit serum albumin was added for stabilization. For reconstitution add 100 µl H ₂ O to get a 1mg/ml solution in PBS. Either add 1:1 (v/v) glycerol, then aliquot and store at -20°C until use, or store aliquots at -80°C without additives. Reconstitute immediately upon receipt! Avoid bright light when working with the antibody to minimize photo bleaching of the fluorescent dye.
Applications	WB: N/A IP: N/A ICC: 1 : 50 up to 1 : 300 IHC: not tested yet IHC-P/FFPE: not tested yet
Label	Sulfo-Cyanine 3
Clone	604.2
Subtype	IgG1 (κ light chain)
Immunogen	Synthetic peptide corresponding to AA 1 to 12 from rat Synaptotagmin1 (UniProt Id: P21707)
Epitop	Epitop: AA 1 to 12 from rat Synaptotagmin1 (UniProt Id: P21707)
Reactivity	Reacts with: rat (P21707). No signal: mouse, zebrafish. Other species not tested yet.
Specificity	Specific for rat synaptotagmin 1, no cross-reactivity to other synaptotagmins.
Remarks	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

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

Extensive remodeling of the presynaptic cytomatrix upon homeostatic adaptation to network activity silencing. Lazarevic V, Schöne C, Heine M, Gundelfinger ED, Fejtova A
The Journal of neuroscience : the official journal of the Society for Neuroscience (2011) 31(28): 10189-200. **ICC**

LRRK2 controls synaptic vesicle storage and mobilization within the recycling pool. Piccoli G, Condliffe SB, Bauer M, Giesert F, Boldt K, De Astis S, Meixner A, Sarioglu H, Vogt-Weisenhorn DM, Wurst W, Gloeckner CJ, et al.
The Journal of neuroscience : the official journal of the Society for Neuroscience (2011) 31(6): 2225-37. **UPTAKE**

The GTPase Rab26 links synaptic vesicles to the autophagy pathway. Binotti B, Pavlos NJ, Riedel D, Wenzel D, Vorbrüggen G, Schalk AM, Kühnel K, Boyken J, Erck C, Martens H, Chua JJ, et al. eLife (2015) 4: e05597. **UPTAKE**

Vesicular glutamate transporter 1 orchestrates recruitment of other synaptic vesicle cargo proteins during synaptic vesicle recycling. Pan PY, Marrs J, Ryan TA
The Journal of biological chemistry (2015) 290(37): 22593-601. **UPTAKE**

GABA(A) receptors can initiate the formation of functional inhibitory GABAergic synapses. Fuchs C, Abitbol K, Burden JJ, Mercer A, Brown L, Iball J, Anne Stephenson F, Thomson AM, Jovanovic JN
The European journal of neuroscience (2013) 38(8): 3146-58. **UPTAKE; tested species: rat**

Dvl regulates endo- and exocytotic processes through binding to synaptotagmin. Kishida S, Hamao K, Inoue M, Hasegawa M, Matsuura Y, Mikoshiba K, Fukuda M, Kikuchi A
Genes to cells : devoted to molecular & cellular mechanisms (2007) 12(1): 49-61. **UPTAKE; tested species: rat**

Evidence for early endosome-like fusion of recently endocytosed synaptic vesicles. Rizzoli SO, Bethani I, Zwilling D, Wenzel D, Siddiqui TJ, Brandhorst D, Jahn R
Traffic (Copenhagen, Denmark) (2006) 7(9): 1163-76. **UPTAKE; tested species: rat**

Endosomal sorting of readily releasable synaptic vesicles. Hoopmann P, Punge A, Barysch SV, Westphal V, Bückers J, Opazo F, Bethani I, Lauterbach MA, Hell SW, Rizzoli SO
Proceedings of the National Academy of Sciences of the United States of America (2010) 107(44): 19055-60.

Selected General References

RAB3 and synaptotagmin: the yin and yang of synaptic membrane fusion. Geppert M, Südhof TC
Annual review of neuroscience (1998) 21: 75-95.

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.

Phospholipid binding by a synaptic vesicle protein homologous to the regulatory region of protein kinase C. Perin MS, Fried VA, Mignery GA, Jahn R, Südhof TC
Nature (1990) 345(6272): 260-3.