SYSY
Synaptic Systems

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Synaptobrevin 1

Cat.No. 104 002; Polyclonal rabbit antibody, 200 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	200 µl antiserum, lyophilized. For reconstitution add 200 µl H_2O, then aliquot and store at -20°C until use.
Applications	**WB**: 1 : 1000 (AP staining) **IP**: yes **ICC**: 1 : 500 **IHC**: 1 : 500 **IHC-P/FFPE**: yes **EM**: yes
Immunogen	Synthetic peptide corresponding to AA 2 to 14 from rat Synaptobrevin1 (UniProt Id: Q63666)
Reactivity	Reacts with: human (P23763), rat (Q63666), mouse (Q62442), monkey, hamster. No signal: chicken, cat. Other species not tested yet.
Specificity	Specific for VAMP 1, no cross reactivity to VAMP 2 and VAMP 3.
matching control	104-0P

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

Synaptobrevins/VAMPs represents a family of integral membrane proteins of 11-13 kDa with the N-terminal region exposed to the cytoplasm and a C-terminal transmembrane domain. Two isoforms were identified in the mammalian CNS, **synaptobrevin 1** (VAMP 1 or p18-1) and synaptobrevin 2 (VAMP 2 or p18-2) that differ in their distribution within different brain regions.
Synaptobrevin 1 is highly conserved between vertebrates and invertebrates. It is a major constituent of synaptic vesicles and peptidergic secretory granules in all neurons examined so far. In addition, it is present on secretory granules of neuroendocrine cells. Low levels of synaptobrevin 2 are present in many other tissues where the protein resides on specialized microvesicles.
In non-neuronal cells the third isoform, cellubrevin (VAMP 3), is present where it is localized to an endosomal membrane pool.
Synaptobrevin/VAMP is an essential component of the exocytotic fusion machine, related to a larger protein family referred to as v-SNAREs. It is the sole target for tetanus and several of the botulinal neurotoxins which cleave the protein at single sites in the C-terminal portion of the molecule.

Selected References SYSY Antibodies

Composition of isolated synaptic boutons reveals the amounts of vesicle trafficking proteins.
Wilhelm BG, Mandad 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. **WB, ICC, IHC; tested species: mouse,rat**

Distribution of SNAP25, VAMP1 and VAMP2 in mature and developing deep cerebellar nuclei after estrogen administration.
Manca P, Mameli O, Caria MA, Torrejón-Escribano B, Blasi J
Neuroscience (2014) 266: 102-15. **IHC, EM, WB**

Rbfox1 Regulates Synaptic Transmission through the Inhibitory Neuron-Specific vSNARE Vamp1.
Vuong CK, Wei W, Lee JA, Lin CH, Damianov A, de la Torre-Ubieta L, Halabi R, Otis KO, Martin KC, O'Dell TJ, Black DL, et al.
Neuron (2018) 98(1): 127-141.e7. **WB, ICC, IHC; KD verified; tested species: mouse**

Combinatorial SNARE complexes modulate the secretion of cytoplasmic granules in human neutrophils.
Mollinedo F, Calafat J, Janssen H, Martín-Martín B, Canchado J, Nabokina SM, Gajate C
Journal of immunology (Baltimore, Md. : 1950) (2006) 177(5): 2831-41. **WB, EM**

Synaptophysin I controls the targeting of VAMP2/synaptobrevin II to synaptic vesicles.
Pennuto M, Bonanomi D, Benfenati F, Valtorta F
Molecular biology of the cell (2003) 14(12): 4909-19. **WB, ICC**

Differential distribution of vesicle associated membrane protein isoforms in the mouse retina.
Sherry DM, Wang MM, Frishman LJ
Molecular vision (2003) 9: 673-88. **WB, IHC**

SNAREs in mammalian sperm: possible implications for fertilization.
Ramalho-Santos J, Moreno RD, Sutovsky P, Chan AW, Hewitson L, Wessel GM, Simerly CR, Schatten G
Developmental biology (2000) 223(1): 54-69. **WB, ICC**

Olanzapine Reverses MK-801-Induced Cognitive Deficits and Region-Specific Alterations of NMDA Receptor Subunits.
Liu X, Li J, Guo C, Wang H, Sun Y, Wang H, Su YA, Li K, Si T
Frontiers in behavioral neuroscience (2017) 11: 260. **WB; tested species: rat**

Genetically-controlled Vesicle-Associated Membrane Protein 1 expression may contribute to Alzheimer's pathophysiology and susceptibility.
Sevlever D, Zou F, Ma L, Carrasquillo S, Crump MG, Culley OJ, Hunter TA, Bisceglio GD, Younkin L, Allen M, Carrasquillo MM, et al.
Molecular neurodegeneration (2015) 10: 18. **WB**

Widespread sequence variations in VAMP1 across vertebrates suggest a potential selective pressure from botulinum neurotoxins.
Peng L, Adler M, Demogines A, Borrell A, Liu H, Tao L, Tepp WH, Zhang SC, Johnson EA, Sawyer SL, Dong M, et al.
PLoS pathogens (2014) 10(7): e1004177. **WB; tested species: human**

Pro-brain-derived neurotrophic factor inhibits GABAergic neurotransmission by activating endocytosis and repression of GABAA receptors.
Riffault B, Medina I, Dumon C, Thalman C, Ferrand N, Friedel P, Gaiarsa JL, Porcher C
The Journal of neuroscience : the official journal of the Society for Neuroscience (2014) 34(40): 13516-34. **ICC; tested species: rat**

Synaptic function is modulated by LRRK2 and glutamate release is increased in cortical neurons of G2019S LRRK2 knock-in mice.
Beccano-Kelly DA, Kuhlmann N, Tatarnikov I, Volta M, Munsie LN, Chou P, Cao LP, Han H, Tapia L, Farrer MJ, Milnerwood AJ, et al.
Frontiers in cellular neuroscience (2014) 8: 301. **WB; tested species: mouse**

Exocytosis at the hair cell ribbon synapse apparently operates without neuronal SNARE proteins.
Nouvian R, Neef J, Bulankina AV, Reisinger E, Pangršič T, Frank T, Sikorra S, Brose N, Binz T, Moser T
Nature neuroscience (2011) 14(4): 411-3. **IHC**

Increased neurotransmitter release at the neuromuscular junction in a mouse model of polyglutamine disease.
Rozas JL, Gómez-Sánchez L, Tomás-Zapico C, Lucas JJ, Fernández-Chacón R
The Journal of neuroscience : the official journal of the Society for Neuroscience (2011) 31(3): 1106-13. **IHC**

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. **WB**

Molecular anatomy of a trafficking organelle.
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Cell (2006) 127(4): 831-46. **WB**