

Synaptobrevin 2

Cat.No. 104 204; Polyclonal Guinea pig antibody, 100 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µl antiserum, lyophilized. For reconstitution add 100 µl H ₂ O, then aliquot and store at -20°C until use.
Applications	WB: 1 : 1000 up to 1 : 5000 (AP staining) IP: yes ICC: 1 : 1000 IHC: 1 : 500 IHC-P/FFPE: 1 : 500
Immunogen	Synthetic peptide corresponding to AA 2 to 17 from rat Synaptobrevin2 (UniProt Id: P63045)
Reactivity	Reacts with: human (P63027), rat (P63045), mouse (P63044), hamster. No signal: chicken. Other species not tested yet.
Specificity	Specific for VAMP 2, no cross reactivity to VAMP 1 and VAMP 3.
matching control	104-2P

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 botulinical neurotoxins which cleave the protein at single sites in the C-terminal portion of the molecule.

Selected References SYSY Antibodies

Septin 7 reduces nonmuscle myosin IIA activity in the SNAP23 complex and hinders GLUT4 storage vesicle docking and fusion. Wasik AA, Dumont V, Tienari J, Nyman TA, Fogarty CL, Forsblom C, Lehto M, Lehtonen E, Groop PH, Lehtonen S Experimental cell research (2017) 350(2): 336-348. **WB, IP, ICC**

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; tested species: mouse**

Evidence for glutamate as a neuroglial transmitter within sensory ganglia. Kung LH, Gong K, Adedoyin M, Ng J, Bhargava A, Ohara PT, Jasmin L PloS one (2013) 8(7): e68312. **IHC**

A novel method for culturing stellate astrocytes reveals spatially distinct Ca²⁺ signaling and vesicle recycling in astrocytic processes.

Wolfe AC, Ahmed S, Awasthi A, Stahlberg MA, Rajput A, Magruder DS, Bonn S, Dean C The Journal of general physiology (2017) 149(1): 149-170. **ICC**

Release activity-dependent control of vesicle endocytosis by the synaptic adhesion molecule N-cadherin. van Stegen B, Dagar S, Gottmann K Scientific reports (2017) 7: 40865. **ICC**

Selected General References

Mechanisms of synaptic vesicle exocytosis.

Lin RC, Scheller RH Annual review of cell and developmental biology (2000) 16: 19-49.

Membrane fusion and exocytosis.

Jahn R, Südhof TC Annual review of biochemistry (1999) 68: 863-911.

Export of cellubrevin from the endoplasmic reticulum is controlled by BAP31.

Annaert WG, Becker B, Kistner U, Reth M, Jahn R The Journal of cell biology (1997) 139(6): 1397-410.

Synaptobrevin binding to synaptophysin: a potential mechanism for controlling the exocytotic fusion machine.

Edelmann L, Hanson PI, Chapman ER, Jahn R The EMBO journal (1995) 14(2): 224-31.

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.

Cellubrevin is a ubiquitous tetanus-toxin substrate homologous to a putative synaptic vesicle fusion protein.

McMahon HT, Ushkaryov YA, Edelmann L, Link E, Binz T, Niemann H, Jahn R, Südhof TC Nature (1993) 364(6435): 346-9.

Structures and chromosomal localizations of two human genes encoding synaptobrevins 1 and 2.

Archer BT, Ozçelik T, Jahn R, Francke U, Südhof TC The Journal of biological chemistry (1990) 265(28): 17267-73.

A synaptic vesicle membrane protein is conserved from mammals to Drosophila.

Südhof TC, Baumert M, Perin MS, Jahn R Neuron (1989) 2(5): 1475-81.

Two vesicle-associated membrane protein genes are differentially expressed in the rat central nervous system.

Elferink LA, Trimble WS, Scheller RH The Journal of biological chemistry (1989) 264(19): 11061-4.

Synaptobrevin: an integral membrane protein of 18,000 daltons present in small synaptic vesicles of rat brain.

Baumert M, Maycox PR, Navone F, De Camilli P, Jahn R The EMBO journal (1989) 8(2): 379-84.

VAMP-1: a synaptic vesicle-associated integral membrane protein.

Trimble WS, Cowan DM, Scheller RH Proceedings of the National Academy of Sciences of the United States of America (1988) 85(12): 4538-42.