

Synaptobrevin1

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 ₂ O, then aliquot and store at -20°C until use. Antibodies should be stored at +4°C when still lyophilized. Do not freeze! For detailed information, see back of the data sheet.
Applications	WB: 1 : 1000 (AP staining) IP: yes ICC: 1 : 500 IHC: 1 : 500 IHC-P: not tested yet EM: external data
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	K.D. validated PubMed: 29621484
Matching control	104-0P

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

Background

Synaptobrevins, also known as vesicle-associated membrane proteins (VAMPs), are predominantly expressed in the nervous system and are classified within the brevin subfamily of the SNARE (Soluble NSF Attachment Protein Receptor) protein superfamily. Brevins are small integral transmembrane proteins characterized by a central SNARE motif, an N-terminal cytoplasmic domain, and a C-terminal transmembrane domain. As crucial components of the SNARE machinery, these proteins play an essential role in vesicular transport and membrane fusion processes within cells (1, 2, 3).

In addition to synaptobrevins, the brevin family includes other tissue-specific members such as cellubrevin (VAMP3), myobrevin (VAMP5), and endobrevin (VAMP8), which are expressed in various non-neuronal tissues (4, 5, 6). These isoforms exhibit distinct spatial expression profiles, suggesting specialized functions beyond the nervous system.

Two Synaptobrevin isoforms were identified in the mammalian CNS, **synaptobrevin1** (VAMP1 or p18-1) and synaptobrevin2 (VAMP2 or p18-2) that differ in their regional distribution within the brain, indicating isoform-specific roles in neuroexocytosis (7).

Synaptobrevin1 (VAMP1) is supposed to be essential for the maintenance of nerve impulse transmission in neuromuscular synapses. In addition, it is present on secretory granules of neuroendocrine cells. Synaptobrevin2 (VAMP2) is more abundant and widely distributed in the brain and has been shown to be mainly involved in the assembly of effective SNARE complexes, Ca²⁺-dependent SV exocytosis, and fast endocytosis in hippocampal synapses (8). It is also expressed in spinal cord dorsal horn neurons and implicated in inflammatory pain sensitization (9). Synaptobrevins are target molecules for tetanus and several of the botulin neurotoxins which cleave the protein at single sites in the C-terminal portion of the molecule and thereby disrupt neurotransmitter release (10).

Selected References for 104 002

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) 3446187: 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) 981: 127-141.e7. . **WB, ICC, IHC; KD verified; tested species: mouse**

VAMPs sensitive to tetanus toxin are required for cortical granule exocytosis in mouse oocytes.

de Paola M, Garrido F, Zanetti MN, Michaut MA

Experimental cell research (2021) 4051: 112629. . **WB, ICC; 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) 1775: 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) 1412: 4909-19. . **WB, ICC**

Access the online factsheet including applicable protocols
at <https://sysy.com/product/104002> or scan the QR-code.



FAQ - How should I store my antibody?

Shipping Conditions

- All our antibodies and control proteins / peptides are shipped lyophilized (vacuum freeze-dried) and are stable in this form without loss of quality at ambient temperatures for several weeks.

Storage of Sealed Vials after Delivery

- **Unlabeled** and **biotin-labeled antibodies** and **control proteins** should be stored at 4°C before reconstitution. **They must not be stored in the freezer when still lyophilized!** Temperatures below zero may cause loss of performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long term storage (several months) may lead to aggregation.
- **Control peptides** should be kept at -20°C before reconstitution.

Long Term Storage after Reconstitution (General Considerations)

- The storage freezer must not be of the frost-free variety ("no-frost freezer"). This cycle between freezing and thawing (to reduce frost-build-up), which is exactly what should be avoided. For the same reason, antibody vials should be placed in an area of the freezer that has minimal temperature fluctuations, for instance towards the back rather than on a door shelf.
- Aliquot the antibody and store frozen (-20°C to -80°C). Avoid very small aliquots (below 20 µl) and use the smallest storage vial or tube possible. The smaller the aliquot, the more the stock concentration is affected by evaporation and adsorption of the antibody to the surface of the storage vial or tube. Adsorption of the antibody to the surface leads to a substantial loss of activity.
- The addition of glycerol to a final concentration of 50% lowers the freezing point of your stock and keeps your antibody at -20°C in liquid state. This efficiently avoids freeze and thaw cycles.

Product Specific Hints for Storage

Control proteins / peptides

- Store at -20°C to -80°C.

Monoclonal Antibodies

- **Ascites** and **hybridoma supernatant** should be stored at -20°C up to -80°C. **Prolonged storage at 4°C is not recommended!** Unlike serum, ascites may contain proteases that will degrade the antibodies.
- **Purified IgG** should be stored at -20°C up to -80°C. Adding a carrier protein like BSA will increase long term stability. Many of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

Polyclonal Antibodies

- **Crude antisera:** With anti-microbials added, they may be stored at 4°C. However, frozen storage (-20°C up to -80°C) is preferable.
- **Affinity purified antibodies:** Less robust than antisera. Storage at -20°C up to -80°C is recommended. Adding a carrier protein like BSA will increase long term stability. Most of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

Fluorescence-labeled Antibodies

- Store as a liquid with 1 : 1 (v/v) glycerol at -20°C. Protect these antibodies from light exposure.

Avoid repeated freeze-thaw cycles for all antibodies!

FAQ - How should I reconstitute my antibody?

Reconstitution

- All our purified antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the amount of deionized water given in the respective datasheet. If higher volumes are preferred, add water as mentioned above and then the desired amount of PBS and a stabilizing carrier protein (e.g. BSA) to a final concentration of 2%. Some of our antibodies already contain albumin. Take this into account when adding more carrier protein. For complete reconstitution, carefully remove the lid. After adding water, briefly vortex the solution. You can spin down the liquid by placing the vial into a 50 ml centrifugation tube filled with paper.
- If desired, add small amounts of azide or thimerosal to prevent microbial growth. This is especially recommended if you want to keep an aliquot at 4°C.
- After reconstitution of fluorescence-labeled antibodies, add 1 : 1 (v/v) glycerol to a final concentration of 50%. This lowers the freezing point of your stock and keeps your antibody in liquid state at -20°C.
- Glycerol may also be added to unlabeled primary antibodies. It is a suitable way to avoid freeze-thaw cycles.
- Please refer to our **tips and hints for subsequent storage** of reconstituted antibodies and control peptides and proteins.