

Synaptobrevin2 (VAMP2)

Cat.No. 104 211; Monoclonal mouse antibody, 50 µg purified IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg purified IgG, lyophilized. Albumin and azide were added for stabilization. For reconstitution add 50 µl H ₂ O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C to -80°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 : 2000 up to 1 : 20000 (AP staining) IP: yes ICC: 1 : 1000 IHC: 1 : 500 up to 1 : 1000 IHC-P: 1 : 500 DNA-PAINT: external data (see remarks) EM: external data (see remarks) ELISA: yes
Clone	69.1
Subtype	IgG1 (κ light chain)
Immunogen	Synthetic peptide corresponding to residues near the amino terminus of rat Synaptobrevin2 (UniProt Id: P63045)
Reactivity	Reacts with: human (P63027), rat (P63045), mouse (P63044), hamster. No signal: chicken, zebrafish. Other species not tested yet.
Specificity	K.O. validated PubMed: 26663078
Matching control	104-2P
Remarks	Although the epitope is still present in the Botox B cleavage product (aa 1 - 76), it is not recognized, probably due to conformational masking of the epitope. DNA-PAINT: This antibody has been successfully used for DNA-PAINT application (see Unterauer et al., 2024; PMID: 38552614). EM: This antibody has been successfully used for electron microscopy according to Tajika et al. 2014 . ELISA: The ELISA-protocol for membrane proteins is required. Suitable as capture antibody for sandwich-ELISA. Please refer to the protocol for suitable detector antibodies.

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 104 211

- 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**
- Activity-Dependent Degradation of Synaptic Vesicle Proteins Requires Rab35 and the ESCRT Pathway. Sheehan P, Zhu M, Beskow A, Vollmer C, Waites CL The Journal of neuroscience : the official journal of the Society for Neuroscience (2016) 3633: 8668-86. . **WB, IP, ICC; tested species: rat**
- Synaptic vesicle proteins and ATG9A self-organize in distinct vesicle phases within synapsin condensates. Park D, Wu Y, Wang X, Gowrishankar S, Baublis A, De Camilli P Nature communications (2023) 141: 455. . **WB, IP, ICC; tested species: mouse**
- Vesicular transport system in myotubes: ultrastructural study and signposting with vesicle-associated membrane proteins. Tajika Y, Takahashi M, Khairani AF, Ueno H, Murakami T, Yorifuji H Histochemistry and cell biology (2014) 141: 441-54. . **WB, ICC, EM; tested species: mouse**
- Synaptotagmin I, synaptobrevin II, and syntaxin I are coexpressed in rat and gerbil pinealocytes. Redeker P Cell and tissue research (1996) 2833: 443-54. . **WB, EM, IHC; tested species: rat**
- Neuronal CD59 isoforms IRIS-1 and IRIS-2 as regulators of neurotransmitter release with implications for Alzheimer's disease. Golec E, Olsson R, Tuysuz EC, Karlsson M, Serjeh Y, King BC, Wennström M, Blom AM Alzheimer's research & therapy (2025) 171: 11. . **WB, ICC; tested species: human**

Access the online factsheet including applicable protocols at <https://sysy.com/product/104211> or scan the QR-code.



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

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.