

## Synaptobrevin2 (VAMP2)

Cat.No. 104 008; Recombinant rabbit antibody, 50 µg recombinant IgG (lyophilized)

### Data Sheet

Reconstitution/ Storage	50 µg purified recombinant IgG, lyophilized. Albumin and azide were added for stabilization. For <b>reconstitution</b> add 50 µl H <sub>2</sub> 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	<b>WB:</b> 1 : 1000 up to 1 : 10000 AP staining <b>IP:</b> yes (see remarks) <b>ICC:</b> 1 : 500 up to 1 : 2000 <b>IHC:</b> 1 : 500 <b>IHC-P:</b> 1 : 5000
Clone	Rb69.1
Subtype	IgG1 (κ light chain)
Immunogen	Synthetic peptide corresponding to residues near the amino terminus of rat Synaptobrevin2 (UniProt Id: P63045)
Reactivity	Reacts with: mouse (P63044), rat (P63045), human (P63027), hamster. No signal: chicken, zebrafish. Other species not tested yet.
Specificity	K.O. validated
Matching control	104-2P
Remarks	This antibody is a chimeric antibody based on the well known monoclonal mouse antibody 69.1. The constant regions of the heavy and light chains have been replaced by rabbit specific sequences. Therefore, the antibody can be used with standard anti-rabbit secondary reagents. The antibody has been expressed in mammalian cells.  <b>Important:</b> 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. <b>IP:</b> This antibody quantitatively precipitates synaptobrevin 2 from detergent extracts regardless of whether the protein is associated.

**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, Ca<sup>2+</sup>-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 104 008

Genetic ablation of synaptotagmin-9 alters tomosyn-1 function to increase insulin secretion from pancreatic β-cells improving glucose clearance.  
Rahman MM, Pathak A, Schueler KL, Alsharif H, Michl A, Alexander J, Kim JA, Bhatnagar S  
FASEB journal : official publication of the Federation of American Societies for Experimental Biology (2023) 378: e23075. . **WB; tested species: mouse**

Multiplex imaging of human induced pluripotent stem cell-derived neurons with CO-Detection by indEXing (CODEX) technology.  
Heinrich L, Zafar F, Morato Torres CA, Singh J, Khan A, Chen MY, Hempel C, Nikulina N, Mulholland J, Braubach O, Schüle B, et al.  
Journal of neuroscience methods (2022) : 109653. . **CODEX\_PC; tested species: human**

NgCAM and VAMP2 Reveal that Direct Delivery and Dendritic Degradation Maintain Axonal Polarity.  
Nabb AT, Bentley M  
Molecular biology of the cell (2021) : mbcE21080425. . **ICC; tested species: rat**

Disrupting stroke-induced GAT-1-syntaxin1A interaction promotes functional recovery after stroke.  
Lin YH, Wu F, Li TY, Lin L, Gao F, Zhu LJ, Xu XM, Chen MY, Hou YL, Zhang CJ, Wu HY, et al.  
Cell reports. Medicine (2024) 511: 101789. . **WB; tested species: mouse**

Extracellular vesicle biomarkers for cognitive impairment in Parkinson's disease.  
Blommer J, Pitcher T, Mustapic M, Eren E, Yao PJ, Vreones MP, Pucha KA, Dalrymple-Alford J, Shoorangiz R, Meissner WG, Anderson T, et al.  
Brain : a journal of neurology (2023) 1461: 195-208. . **ICC; tested species: human**

Access the online factsheet including applicable protocols at <https://sysy.com/product/104008> 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.