SYSY Antibodies

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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 **reconstitution** add 50 µl H_2O 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 : 1000 up to 1 : 10000 (AP staining) **IP**: yes (see remarks) **ICC**: 1 : 500 up to 1 : 2000 **IHC**: 1 : 500 **IHC-P (FFPE)**: 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 The constant regions of the heavy and light chains have been replaced by rabbit specific sequences.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. **Important**: 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. **IP**: 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, 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 botulinal 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

ATP Synthase Abundance in Neuronal Extracellular Vesicles Reflects Changes in the Mitochondria of Parent Neurons.
Yao PJ, Nogueras-Ortiz C, Pucha KA, Kapogiannis D
Journal of extracellular vesicles (2025) 148: e70140. . **WB, ICC, EM; tested species: rat**

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**

Reversible synaptic deficits in early-stage batten disease.
Wani MA, Hall CM, Mittmann T, Grünewald B, von Engelhardt J
Journal of translational medicine (2026) 241: . . **WB; tested species: mouse**

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**

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**

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 SYSY antibodies and control proteins/peptides are shipped lyophilized (vacuum freeze-dried). In this form, they remain stable 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. **Do not freeze lyophilized antibodies**. Temperatures below 0°C may impair performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long-term storage of lyophilized fluorophore-conjugates may cause aggregation.
- **Control peptides** should be stored at -20°C before reconstitution.

Long Term Storage after Reconstitution (General Considerations)

- **Do not use frost-free ("no-frost") freezers.** These units periodically warm to remove ice buildup, causing freeze–thaw cycles that can damage antibodies.
- Store vials in areas with minimal temperature fluctuation - preferably toward the back of the freezer, not on the door.
- Aliquot reconstituted antibodies and store at –20°C to –80°C.
- Avoid very small aliquots (<20 µL), as evaporation and adsorption to tube surfaces can reduce antibody concentration and activity.
- Use the smallest practical storage vial to minimize surface area.
- Adding glycerol to a final concentration of 50% prevents freezing at -20°C, allowing storage in liquid form and effectively avoiding freeze–thaw cycles.

Product Specific Hints for Storage

Control proteins / peptides

- Store at -20°C to -80°C

Monoclonal Antibodies

- **Ascites and hybridoma supernatant:** Store at -20°C to -80°C
  Prolonged storage at 4°C is not recommended, as proteases present in ascites may degrade antibodies.
- **Purified IgG:** Store at -20°C to -80°C
  Adding a carrier protein (e.g., BSA) enhances long-term stability.
  Many SYSY antibodies already contain carrier proteins - refer to the respective datasheet for details.

Polyclonal Antibodies

- **Crude antisera:** Can be stored at 4°C with antimicrobials added, but -20°C to -80°C is preferred
- **Affinity-purified antibodies:** Less stable than antisera; store at -20°C to -80°C
  Adding a carrier protein such as BSA improves long-term stability.
  Most SYSY antibodies already contain carrier proteins - refer to the respective datasheet for details.

Fluorescence-labeled Antibodies

- Store as a liquid with 1:1 (v/v) glycerol at -20°C, and protect from light exposure

Avoid repeated freeze-thaw cycles for all antibodies!

FAQ - How should I reconstitute my antibody?

Reconstitution

- All purified SYSY antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the volume of deionized water specified in the corresponding datasheet. If a larger final volume is desired, first add the recommended amount of water, then adjust with PBS and, if needed, add a stabilizing carrier protein (e.g., BSA) to a final concentration of 2%. Some SYSY antibodies already contain albumin; please take this into account before adding additional carrier protein.

For complete reconstitution, carefully remove the vial cap. After adding water, briefly vortex the solution. To collect the liquid at the bottom of the vial, place the vial inside a 50 ml centrifuge tube padded with paper and centrifuge briefly.

- If desired, small amounts of azide or thimerosal may be added to prevent microbial growth. This is particularly recommended when storing an aliquot at 4°C.
- After reconstitution of fluorescence-labeled antibodies, add glycerol 1:1 (v/v) to achieve a final concentration of 50%. This prevents freezing at –20°C and keeps the antibody in liquid form, effectively avoiding freeze–thaw cycles.
- Glycerol may also be added to unlabeled primary antibodies as a general measure to prevent freeze–thaw damage.
- For further guidance, please refer to our **storage tips** and recommendations for reconstituted antibodies, control peptides, and control proteins.