SYSY Antibodies

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Synaptobrevin2 (VAMP2)

Cat.No. 104 403; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. 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**: not tested yet **ICC**: 1 : 1000 up to 1 : 2000 **IHC**: 1 : 1000 **IHC-P (FFPE)**: 1 : 2000 up to 1 : 5000
Immunogen	Synthetic peptide corresponding to residues near the amino terminus of rat Synaptobrevin2 (UniProt Id: P63045)
Reactivity	Reacts with: mouse (P63044), rat (P63045). Other species not tested yet.

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 104 403

EHD2 regulates plasma membrane integrity and downstream insulin receptor signalling events.
Neuhaus M, Fryklund C, Taylor H, Borreguero-Muñoz A, Kopietz F, Ardalani H, Rogova O, Stirrat L, Bremner SK, Spégel P, Bryant NJ, et al.
Molecular biology of the cell (2023) : mbcE23030078. . **WB, ICC; tested species: mouse**

GEARBOCS: An Adeno Associated Virus Tool for In Vivo Gene Editing in Astrocytes.
Bindu DS, Tan CX, Savage JT, Eroglu C
bioRxiv : the preprint server for biology (2023) : . . **IHC; tested species: mouse**

Selected General References

Membrane fusion and exocytosis.
Jahn R et al. Annu. Rev. Biochem. (1999) PubMed:10872468

Botulinum Toxin: A Comprehensive Review of Its Molecular Architecture and Mechanistic Action.
Kumar R et al. Int J Mol Sci (2025) PubMed:39859491

The function of VAMP2 in mediating membrane fusion: An overview.
Yan C et al. Front Mol Neurosci (2022) PubMed:36618823

SNAP25/syntaxin4/VAMP2/Munc18-1 Complexes in Spinal Dorsal Horn Contributed to Inflammatory Pain.
Duan XL et al. Neuroscience (2020) PubMed:31962145

Distribution of synaptobrevin/VAMP 1 and 2 in rat brain.
Raptis A et al. J Chem Neuroanat (2005) PubMed:16169186

Access the online factsheet including applicable protocols at https://sysy.com/product/104403 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.