SYSY Antibodies

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VAMP1/2/3

Cat.No. 104 011; Monoclonal mouse antibody, 100 µg purified IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µg purified IgG, lyophilized. Albumin and azide were added for stabilization. For **reconstitution** add 100 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 (AP staining) (see remarks) **IP**: not tested yet **ICC**: 1 : 100 up to 1 : 500 **IHC**: 1 : 100 up to 1 : 500 **IHC-P (FFPE)**: 1 : 500 up to 1 : 1000
Clone	10.1
Subtype	IgG1
Immunogen	Recombinant protein corresponding to AA 1 to 118 from rat Synaptobrevin1 (UniProt Id: Q63666)
Epitop	AA 31 to 98 from rat Synaptobrevin1 (UniProt Id: Q63666)
Reactivity	Reacts with: human (P23763, P63027, Q15836), rat (Q63666, P63045, P63025), mouse (Q62442, P63044, P63024), vertebrates, invertebrates. Other species not tested yet.
Specificity	Detects the three isoforms VAMP 1, 2, 3.
Remarks	This antibody is not recommended for non-neuronal cells. Please use cat. no. 104 102 for such experiments. This antibody reacts with the conserved middle-portion of the molecule. Its affinity/avidity is not very high, thus requiring extended incubation periods and sensitive detection systems. **WB**: This antibody recognizes the Botulinumtoxin B cleavage product (aa 1 - 76) with reduced affinity. The sensitivity is sufficient for the detection of cleaved recombinant protein. For analysis of toxin treated tissue homogenates cat. no. 104 203 is recommended.

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

Background

Synaptobrevins/VAMPs represents a family of integral membrane proteins of 11-13 kDa with the N-terminal region exposed to the cytoplasm and a C-terminal transmembrane domain. Two isoforms were identified in the mammalian CNS, synaptobrevin 1 (VAMP 1 or p18-1) and synaptobrevin 2 (VAMP 2 or p18-2) that differ in their distribution within different brain regions.
Synaptobrevin 1 is highly conserved between vertebrates and invertebrates. It is a major constituent of synaptic vesicles and peptidergic secretory granules in all neurons examined so far. In addition, it is present on secretory granules of neuroendocrine cells. Low levels of synaptobrevin 2 are present in many other tissues where the protein resides on specialized microvesicles.
In non-neuronal cells the third isoform, cellubrevin (VAMP 3), is present where it is localized to an endosomal membrane pool.
Synaptobrevin/VAMP is an essential component of the exocytotic fusion machine, related to a larger protein family referred to as v-SNAREs. It is the sole target for tetanus and several of the botulinal neurotoxins which cleave the protein at single sites in the C-terminal portion of the molecule.

Selected References for 104 011

SV31 is a Zn2+-binding synaptic vesicle protein.
Barth J, Zimmermann H, Volknandt W
Journal of neurochemistry (2011) 1184: 558-70. . **WB, ICC**

Synaptotagmin I, synaptobrevin II, and syntaxin I are coexpressed in rat and gerbil pinealocytes.
Redecker P
Cell and tissue research (1996) 2833: 443-54. . **IHC; tested species: rat**

Maternal stress programs a demasculinization of glutamatergic transmission in stress-related brain regions of aged rats.
Verhaeghe R, Gao V, Morley-Fletcher S, Bouwalerh H, Van Camp G, Cisani F, Nicoletti F, Maccari S
GeroScience (2021) : . . **WB; tested species: rat**

VAPB depletion alters neuritogenesis and phosphoinositide balance in motoneuron-like cells: relevance to VAPB-linked ALS.
Genevini P, Colombo MN, Venditti R, Marcuzzo S, Colombo SF, Bernasconi P, De Matteis MA, Borgese N, Navone F
Journal of cell science (2019) : . . **ICC; tested species: mouse**

Homozygous STXBP1 variant causes encephalopathy and gain-of-function in synaptic transmission.
Lammertse HCA, van Berkel AA, Iacomino M, Toonen RF, Striano P, Gambardella A, Verhage M, Zara F
Brain : a journal of neurology (2019) : . . **ICC; tested species: mouse**

Hsc70 chaperone activity is required for the cytosolic slow axonal transport of synapsin.
Ganguly A, Han X, Das U, Wang L, Loi J, Sun J, Gitler D, Caillol G, Leterrier C, Yates JR, Roy S, et al.
The Journal of cell biology (2017) 2167: 2059-2074. . **ICC; tested species: mouse**

The zebrafish pinball wizard gene encodes WRB, a tail-anchored-protein receptor essential for inner-ear hair cells and retinal photoreceptors.
Lin SY, Vollrath MA, Mangosing S, Shen J, Cardenas E, Corey DP
The Journal of physiology (2016) 5944: 895-914. . **IHC; tested species: zebrafish**

A common mechanism for the regulation of vesicular SNAREs on phospholipid membranes.
Hu K, Rickman C, Carroll J, Davletov B
The Biochemical journal (2004) 377Pt 3: 781-5. . **WB**

A role for Sec1/Munc18 proteins in platelet exocytosis.
Schraw TD, Lemons PP, Dean WL, Whiteheart SW
The Biochemical journal (2003) 374Pt 1: 207-17. . **WB; tested species: human**

Access the online factsheet including applicable protocols at https://sysy.com/product/104011 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.