SYSY Antibodies

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SV2 C

Cat.No. 119 203; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Albumin was 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 (AP staining) (see remarks) **IP**: yes **ICC**: 1 : 500 **IHC**: 1 : 200 **IHC-P (FFPE)**: 1 : 200
Immunogen	Synthetic peptide corresponding to AA 2 to 16 from rat SV2C (UniProt Id: Q9Z2I6)
Reactivity	Reacts with: human (Q496J9), rat (Q9Z2I6), mouse (Q69ZS6), cow, dog. Other species not tested yet.
Matching control	119-2P
Remarks	**WB**: To avoid protein aggregation, do not heat samples for SDS-PAGE. Antibody detects an unspecific band at ~35 kD in rat brain.

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

Background

SV2s (**S**ynaptic **V**esicle Protein **2**) are integral membrane glycoproteins present in synaptic vesicles. They have 12 transmembrane domains predicted by sequence analysis (1). There are three characterized isoforms, SV2 A, SV2 B and SV2 C that are similar in structure but show different expression patterns. SV2 A is expressed ubiquitously throughout the brain and plays a crucial role in modulating synaptic transmission by regulating the expression and trafficking of synaptotagmin, a key calcium sensor in neurotransmitter release (1).
SV2 B has a more restricted distribution with varying degrees of coexpression with SV2 A and is predominantly found in the cortex and hippocampus (2). SV2 C is more closely related to SV2 A but shows a very restricted expression pattern. The highest expression levels were observed in phylogenetically old brain areas like pallidum, the midbrain and the olfactory bulb (3).
SV2 expression has also been observed in other non-neuronal organs. In kidney it localizes to podocytes and is essential for the integrity of the glomerular filtration barrier (4).

Selected References for 119 203

Tuning of glutamate, but not GABA, release by an intra-synaptic vesicles APP domain whose function can be modulated by β- or α-secretase cleavage.
Yao W, Tambini MD, Liu X, D'Adamio L
The Journal of neuroscience : the official journal of the Society for Neuroscience (2019) : . . **WB; tested species: mouse**

Entry of a recombinant, full-length, atoxic tetanus neurotoxin into Neuro-2a cells.
Blum FC, Przedpelski A, Tepp WH, Johnson EA, Barbieri JT
Infection and immunity (2014) 822: 873-81. . **ICC; tested species: mouse**

A Cell-Based Potency Assay for Determining the Relative Potency of Botulinum Neurotoxin A Preparations Using Manual and Semi-Automated Procedures.
Dunning FM, Hendrickson S, Wolfe S, Harding D, Geurs T, Piazza TM, Little TA, Tucker WC
Toxins (2026) 181: . . **ICC; tested species: human**

A sensitive cell-based assay for testing potency of Botulinum neurotoxin type A.
Caliskan C, Simsek D, Leese C, Doran C, Seward E, Peden AA, Davletov B
ALTEX (2024) : . . **ICC; tested species: human**

Presynaptic targeting of botulinum neurotoxin type A requires a tripartite PSG-Syt1-SV2 plasma membrane nanocluster for synaptic vesicle entry.
Joensuu M, Syed P, Saber SH, Lanoue V, Wallis TP, Rae J, Blum A, Gormal RS, Small C, Sanders S, Jiang A, et al.
The EMBO journal (2023) : e112095. . **ICC; tested species: rat**

Human-Relevant Sensitivity of iPSC-Derived Human Motor Neurons to BoNT/A1 and B1.
Schenke M, Prause HC, Bergforth W, Przykopanski A, Rummel A, Klawonn F, Seeger B
Toxins (2021) 138: . . **WB; tested species: human**

Tetanus Toxin cis-Loop Contributes to Light-Chain Translocation.
Zuverink M, Bluma M, Barbieri JT
mSphere (2020) 53: . . **ICC; tested species: mouse**

Selected General References

Synaptic Vesicle Glycoprotein 2A: Features and Functions.
Rossi R et al. Front Neurosci (2022) PubMed:35573314

The Synaptic Vesicle Glycoprotein 2: Structure, Function, and Disease Relevance.
Stout KA et al. ACS Chem Neurosci (2019) PubMed:31394034

Access the online factsheet including applicable protocols at https://sysy.com/product/119203 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.