SYSY Antibodies

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SV2 A

Cat.No. 119 002; Polyclonal rabbit antibody, 200 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	200 µl antiserum, lyophilized. For **reconstitution** add 200 µl H_2O, then aliquot and store at -20°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 : 200 **IHC**: 1 : 500 **IHC-P (FFPE)**: 1 : 200 **EM**: external data (see remarks)
Immunogen	Synthetic peptide corresponding to AA 2 to 17 from human SV2A (UniProt Id: Q7L0J3)
Reactivity	Reacts with: human (Q7L0J3), rat (Q02563), mouse (Q9JIS5), Guinea pig, cow, hamster, chicken, zebrafish. Other species not tested yet.
Matching control	119-0P
Remarks	**WB**: To avoid protein aggregation, do not heat samples for SDS-PAGE. **EM**: This antibody has been successfully applied and published for this method by customers (see application-specific references).

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).

For more information on protein expression pattern, please refer to the overview image in our SYSY Antibodies ATLAS.

Selected References for 119 002

Decreased expression of synaptic vesicle protein 2A, the binding site for levetiracetam, during epileptogenesis and chronic epilepsy.
van Vliet EA, Aronica E, Redeker S, Boer K, Gorter JA
Epilepsia (2009) 503: 422-33. . **WB, IHC, IHC-P**

SV2B defines a subpopulation of synaptic vesicles.
Paulussen I, Beckert H, Musial TF, Gschossmann LJ, Wolf J, Schmitt M, Clasadonte J, Mairet-Coello G, Wolff C, Schoch S, Dietrich D, et al.
Journal of molecular cell biology (2023) : . . **WB, IHC, EM; tested species: mouse**

SV2C is a synaptic vesicle protein with an unusually restricted localization: anatomy of a synaptic vesicle protein family.
Janz R, Südhof TC
Neuroscience (1999) 944: 1279-90. . **WB, IHC**

Traffic of botulinum toxins A and E in excitatory and inhibitory neurons.
Verderio C, Grumelli C, Raiteri L, Coco S, Paluzzi S, Caccin P, Rossetto O, Bonanno G, Montecucco C, Matteoli M
Traffic (Copenhagen, Denmark) (2007) 82: 142-53. . **ICC; tested species: rat**

Dynamic Regional Divergence of SV2A Expression in a Mouse Model of Primary Tauopathy: A Longitudinal Multi-Tracer PET Study.
Li Y, Zatcepin A, Palumbo G, Oos R, Wind-Mark K, Lindner S, Gildehaus FJ, Gnörich J, Werner RA, Brendel M, Kunze LH, et al.
NeuroImage (2026) : 121932. . **IHC; tested species: mouse**

Mutant TDP-43 drives impairments in axonal transport and glycolysis in a mouse stem-cell-derived motor neuron model of amyotrophic lateral sclerosis (ALS).
Carroll E, Scaber J, Pasniceanu IS, Dafinca R, Gordon D, Candalija A, Talbot K
Cell death & disease (2026) 171: 193. . **ICC; tested species: mouse**

SV2A-PET imaging uncovers cortical synapse loss in multiple sclerosis.
Ullrich Gavilanes EM, Bartos LM, Gernert JA, Carral CA, Ruiz Navarro D, Havla J, Gerdes LA, Gnörich JS, Kunze LH, Dorneich JS, Pakula V, et al.
Science translational medicine (2025) 17818: eadt5585. . **IHC-P; tested species: human,mouse**

Alzheimer's genetic risk factor Bin1 controls synapse vesicle exo-endocytosis in inhibitory synapses.
Barata MA, Perdigão C, Ramalho J, Gomes ER, Guimas Almeida C
Cell reports (2025) 448: 116005. . **ICC; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/119002 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.