

SV2 A

Cat.No. 119 011; 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 ₂ O 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) IP: yes ICC: 1 : 100 up to 1 : 500 IHC: not recommended IHC-P: 1 : 500 DNA-PAINT: external data (see remarks)
Clone	17G10
Subtype	IgG3 (κ light chain)
Immunogen	Synthetic peptide corresponding to residues near the amino terminus of human SV2 A (UniProt Id: Q7L0J3)
Reactivity	Reacts with: rat (Q02563), mouse (Q9JIS5). Other species not tested yet. Predicted to cross-react with human (Q7L0J3) due to high sequence homology.
Matching control	119-0P
Remarks	WB: To avoid protein aggregation, do not heat samples for SDS-PAGE. DNA-PAINT: 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 **P**rotein **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 119 011

Vesicular Glutamate Release From Feeder-FreehiPSC-Derived Neurons.
Baldassari S, Cervetto C, Amato S, Fruscione F, Balagura G, Pelassa S, Musante I, Iacomino M, Traverso M, Corradi A, Scudieri P, et al.

International journal of molecular sciences (2022) 2318: . . **WB, ICC; tested species: human**

Spatial proteomics in neurons at single-protein resolution.
Unterauer EM, Shetab Boushehri S, Jevdokimenko K, Masullo LA, Ganji M, Sograte-Idrissi S, Kowalewski R, Strauss S, Reinhardt SCM, Perovic A, Marr C, et al.
Cell (2024) 1877: 1785-1800.e16. . **DNA_PAINT; tested species: rat**

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**

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'Adamo L
The Journal of neuroscience : the official journal of the Society for Neuroscience (2019) : . . **WB; tested species: mouse**

Botulinum Neurotoxins A, B, C, E, and F preferentially enter cultured human motor neurons compared to other cultured human neuronal populations.

Pellet S, Tepp WH, Johnson EA
FEBS letters (2019) : . . **WB; tested species: human**

Protective Role of Levetiracetam Against Cognitive Impairment And Brain White Matter Damage in Mouse prolonged Cerebral Hypoperfusion.

Inaba T, Miyamoto N, Hira K, Ueno Y, Yamashiro K, Watanabe M, Shimada Y, Hattori N, Urabe T
Neuroscience (2019) 414: 255-264. . **WB; tested species: mouse**

Ubiquitin-Synaptobrevin Fusion Protein Causes Degeneration of Presynaptic Motor Terminals in Mice.
Liu Y, Li H, Sugiura Y, Han W, Gallardo G, Khvotchev M, Zhang Y, Kavalali ET, Südhof TC, Lin W
The Journal of neuroscience : the official journal of the Society for Neuroscience (2015) 3533: 11514-31. . **WB**

Glycosylation is dispensable for sorting of synaptotagmin 1 but is critical for targeting of SV2 and synaptophysin to recycling synaptic vesicles.

Kwon SE, Chapman ER
The Journal of biological chemistry (2012) 28742: 35658-68. . **ICC**

Access the online factsheet including applicable protocols
at <https://sysy.com/product/119011> or scan the QR-code.



FAQ - How should I store my antibody?

Shipping Conditions

- All our antibodies and control proteins / peptides are shipped lyophilized (vacuum freeze-dried) and are stable in this form 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. **They must not be stored in the freezer when still lyophilized!** Temperatures below zero may cause loss of performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long term storage (several months) may lead to aggregation.
- **Control peptides** should be kept at -20°C before reconstitution.

Long Term Storage after Reconstitution (General Considerations)

- The storage freezer must not be of the frost-free variety ("no-frost freezer"). This cycle between freezing and thawing (to reduce frost-build-up), which is exactly what should be avoided. For the same reason, antibody vials should be placed in an area of the freezer that has minimal temperature fluctuations, for instance towards the back rather than on a door shelf.
- Aliquot the antibody and store frozen (-20°C to -80°C). Avoid very small aliquots (below 20 µl) and use the smallest storage vial or tube possible. The smaller the aliquot, the more the stock concentration is affected by evaporation and adsorption of the antibody to the surface of the storage vial or tube. Adsorption of the antibody to the surface leads to a substantial loss of activity.
- The addition of glycerol to a final concentration of 50% lowers the freezing point of your stock and keeps your antibody at -20°C in liquid state. This efficiently avoids freeze and thaw cycles.

Product Specific Hints for Storage

Control proteins / peptides

- Store at -20°C to -80°C.

Monoclonal Antibodies

- **Ascites** and **hybridoma supernatant** should be stored at -20°C up to -80°C. **Prolonged storage at 4°C is not recommended!** Unlike serum, ascites may contain proteases that will degrade the antibodies.
- **Purified IgG** should be stored at -20°C up to -80°C. Adding a carrier protein like BSA will increase long term stability. Many of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

Polyclonal Antibodies

- **Crude antisera:** With anti-microbials added, they may be stored at 4°C. However, frozen storage (-20°C up to -80°C) is preferable.
- **Affinity purified antibodies:** Less robust than antisera. Storage at -20°C up to -80°C is recommended. Adding a carrier protein like BSA will increase long term stability. Most of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

Fluorescence-labeled Antibodies

- Store as a liquid with 1 : 1 (v/v) glycerol at -20°C. Protect these antibodies from light exposure.

Avoid repeated freeze-thaw cycles for all antibodies!

FAQ - How should I reconstitute my antibody?

Reconstitution

- All our purified antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the amount of deionized water given in the respective datasheet. If higher volumes are preferred, add water as mentioned above and then the desired amount of PBS and a stabilizing carrier protein (e.g. BSA) to a final concentration of 2%. Some of our antibodies already contain albumin. Take this into account when adding more carrier protein. For complete reconstitution, carefully remove the lid. After adding water, briefly vortex the solution. You can spin down the liquid by placing the vial into a 50 ml centrifugation tube filled with paper.
- If desired, add small amounts of azide or thimerosal to prevent microbial growth. This is especially recommended if you want to keep an aliquot at 4°C.
- After reconstitution of fluorescence-labeled antibodies, add 1 : 1 (v/v) glycerol to a final concentration of 50%. This lowers the freezing point of your stock and keeps your antibody in liquid state at -20°C.
- Glycerol may also be added to unlabeled primary antibodies. It is a suitable way to avoid freeze-thaw cycles.
- Please refer to our **tips and hints for subsequent storage** of reconstituted antibodies and control peptides and proteins.