SYSY Antibodies

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SV2 B

Cat.No. 119 102; 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) **IP**: yes **ICC**: 1 : 200 up to 1 : 2000 **IHC**: 1 : 200 up to 1 : 2000 **IHC-P**: 1 : 200 **EM**: external data
Immunogen	Synthetic peptide corresponding to AA 2 to 17 from rat SV2B (UniProt Id: Q63564)
Reactivity	Reacts with: human (Q7L1I2), rat (Q63564), mouse (Q8BG39), hamster, chicken. Other species not tested yet.
Specificity	K.O. validated PubMed: 19381277
Matching control	119-1P
Remarks	**WB**: To avoid protein aggregation, do not heat samples for SDS-PAGE.

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 119 102

Synaptic vesicle protein 2B is expressed in podocyte, and its expression is altered in proteinuric glomeruli.
Miyauchi N, Saito A, Karasawa T, Harita Y, Suzuki K, Koike H, Han GD, Shimizu F, Kawachi H
Journal of the American Society of Nephrology : JASN (2006) 1710: 2748-59. . **WB, ICC, IHC**

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; KO verified; tested species: mouse**

SV2B is essential for the integrity of the glomerular filtration barrier.
Fukusumi Y, Wakamatsu A, Takashima N, Hasegawa E, Miyauchi N, Tomita M, Kawachi H
Laboratory investigation; a journal of technical methods and pathology (2015) 955: 534-45. . **WB, IHC, IP; KO verified; tested species: mouse**

Cohen Syndrome Patient iPSC-Derived Neurospheres and Forebrain-Like Glutamatergic Neurons Reveal Reduced Proliferation of Neural Progenitor Cells and Altered Expression of Synapse Genes.
Lee YK, Hwang SK, Lee SK, Yang JE, Kwak JH, Seo H, Ahn H, Lee YS, Kim J, Lim CS, Kaang BK, et al.
Journal of clinical medicine (2020) 96: . . **WB, ICC; tested species: human**

CNS synapses are stabilized trans-synaptically by laminins and laminin-interacting proteins.
Hunter DD, Manglapus MK, Bachay G, Claudepierre T, Dolan MW, Gesuelli KA, Brunken WJ
The Journal of comparative neurology (2019) 5271: 67-86. . **WB, IHC; tested species: mouse**

Extensive remodeling of the presynaptic cytomatrix upon homeostatic adaptation to network activity silencing.
Lazarevic V, Schöne C, Heine M, Gundelfinger ED, Fejtova A
The Journal of neuroscience : the official journal of the Society for Neuroscience (2011) 3128: 10189-200. . **WB, ICC**

Loss of the Synaptic Vesicle Protein SV2B results in reduced neurotransmission and altered synaptic vesicle protein expression in the retina.
Morgans CW, Kensel-Hammes P, Hurley JB, Burton K, Idzerda R, McKnight GS, Bajjalieh SM
PloS one (2009) 44: e5230. . **WB, IHC; KO verified; tested species: mouse**

Brain synaptic junctional proteins at the acrosome of rat testicular germ cells.
Redecker P, Kreutz MR, Bockmann J, Gundelfinger ED, Boeckers TM
The journal of histochemistry and cytochemistry : official journal of the Histochemistry Society (2003) 516: 809-19. . **WB, IHC**

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**

Access the online factsheet including applicable protocols at https://sysy.com/product/119102 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 a 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.