SYSY Antibodies

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VGLUT1 (SLC17A7)

Cat.No. 135 303; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Albumin and azide were 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 up to 1 : 10000 (AP staining) (see remarks) **IP**: yes **ICC**: 1 : 500 up to 1 : 10000 **IHC**: 1 : 1000 **IHC-P (FFPE)**: 1 : 500 up to 1 : 1000 **IHC-Fr**: 1 : 500 (see remarks) **DNA-PAINT**: external data (see remarks) **Clarity**: external data (see remarks) **EM**: external data (see remarks) **ELISA**: yes (see remarks)
Immunogen	Recombinant protein corresponding to residues near the carboxy terminus of rat VGLUT 1 (UniProt Id: Q62634)
Reactivity	Reacts with: human (Q9P2U7), rat (Q62634), mouse (Q3TXX4), cow, goat, sheep, dog. Other species not tested yet.
Specificity	K.O. validated PubMed: 15103023
Matching control	135-3P
Remarks	This antibody is highly recommended as marker for glutamatergic nerve terminals. **WB**: To avoid protein aggregation, do not heat samples for SDS-PAGE. **IHC-Fr**: The following fixatives are possible: methanol, acetone, 4% formaldehyde/PFA. **DNA-PAINT**: This antibody has been successfully applied and published for this method by customers (see application-specific references). **Clarity**: This antibody has been successfully applied and published for this method by customers (see application-specific references). **EM**: This antibody has been successfully applied and published for this method by customers (see application-specific references). **ELISA**: The ELISA-protocol for membrane proteins is required. Suitable as detector antibody for sandwich-ELISA. Please refer to the protocol for suitable capture antibodies.

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

Background

The **v**esicular **glu**tamate **t**ransporter **1 VGLUT1**, also referred to as **BNPI** and **SLC17A7**, was originally identified as a brain specific phosphate transporter. Like the related VGLUT2, VGLUT1 is both necessary and sufficient for uptake and storage of glutamate and thus comprises the sole determinant for a glutamatergic phenotype. Both VGLUTs are different from the plasma membrane transporters in that they are driven by a proton electrochemical gradient across the vesicle membrane.
VGLUT1 and VGLUT2 show complementary expression patterns. Together, they are currently the best markers for glutamatergic nerve terminals and glutamatergic synapses.

Selected References for 135 303

SAM68 regulates neuronal activity-dependent alternative splicing of neurexin-1.
Iijima T, Wu K, Witte H, Hanno-Iijima Y, Glatter T, Richard S, Scheiffele P
Cell (2011) 1477: 1601-14. . **ICC, IHC, WB; tested species: mouse**

Synaptic and vesicular co-localization of the glutamate transporters VGLUT1 and VGLUT2 in the mouse hippocampus.
Herzog E, Takamori S, Jahn R, Brose N, Wojcik SM
Journal of neurochemistry (2006) 993: 1011-8. . **IHC, IP, WB; tested species: mouse**

Vesicular Glutamate Transporter 3 Is Involved in Glutamatergic Signalling in Podocytes.
Nishii N, Kawai T, Yasuoka H, Abe T, Tatsumi N, Harada Y, Miyaji T, Li S, Tsukano M, Watanabe M, Ogawa D, et al.
International journal of molecular sciences (2025) 266: . . **WB, ICC, IHC; tested species: mouse,rat**

An essential role for vesicular glutamate transporter 1 (VGLUT1) in postnatal development and control of quantal size.
Wojcik SM, Rhee JS, Herzog E, Sigler A, Jahn R, Takamori S, Brose N, Rosenmund C
Proceedings of the National Academy of Sciences of the United States of America (2004) 10118: 7158-63. . **ICC, WB, IHC; KO verified; tested species: mouse**

Influenza A Virus (H1N1) Infection Induces Microglial Activation and Temporal Dysbalance in Glutamatergic Synaptic Transmission.
Düsedau HP, Steffen J, Figueiredo CA, Boehme JD, Schultz K, Erck C, Korte M, Faber-Zuschratter H, Smalla KH, Dieterich D, Kröger A, et al.
mBio (2021) 125: e0177621. . **WB, FACS; tested species: mouse**

NMDA receptors in GABAergic synapses during postnatal development.
Cserép C, Szabadits E, Szőnyi A, Watanabe M, Freund TF, Nyiri G
PloS one (2012) 75: e37753. . **IHC, EM; tested species: mouse**

Synaptophysin autoantibodies mediate synaptic dysfunction in cerebellar ataxia.
Ho S, Wong HK, Shqau D, Winklmeier S, Grobe-Einsler M, Rostasy K, Kümpfel T, Thaler FS, Brimberg L, Schneider MA, Muley T, et al.
Cell reports. Medicine (2026) : 102822. . **IHC, ICC; tested species: human**

The TMEM132B-GABAA receptor complex controls alcohol actions in the brain.
Wang G, Peng S, Reyes Mendez M, Keramidas A, Castellano D, Wu K, Han W, Tian Q, Dong L, Li Y, Lu W, et al.
Cell (2024) 18723: 6649-6668.e35. . **WB, ICC; tested species: mouse**

GAP43 Located on Corticostriatal Terminals Restrains Novelty-Induced Hyperactivity in Mice.
Maroto IB, Costas-Insua C, Montero-Fernández C, Hermoso-López A, Lebouc M, Bajo-Grañeras R, Álvaro-Blázquez A, Blázquez C, Cannich A, Marsicano G, Martín R, et al.
The Journal of neuroscience : the official journal of the Society for Neuroscience (2024) 4439: . . **WB, IHC; tested species: mouse**

Neuron-derived extracellular vesicles contain synaptic proteins, promote spine formation, activate TrkB-mediated signalling and preserve neuronal complexity.
Solana-Balaguer J, Campoy-Campos G, Martín-Flores N, Pérez-Sisqués L, Sitjà-Roqueta L, Kucukerden M, Gámez-Valero A, Coll-Manzano A, Martí E, Pérez-Navarro E, Alberch J, et al.
Journal of extracellular vesicles (2023) 129: e12355. . **WB, ICC; tested species: rat**

Access the online factsheet including applicable protocols at https://sysy.com/product/135303 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.