SYSY Antibodies

Rudolf-Wissell-Str. 28a
37079 Göttingen, Germany
Phone: +49 551-50556-0
Fax: +49 551-50556-384
E-mail: sales@sysy.com
Web: www.sysy.com

VGLUT1 (SLC17A7)

Cat.No. 135 304; Polyclonal Guinea pig antibody, 100 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µl antiserum, lyophilized. For **reconstitution** add 100 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 : 5000 (AP staining) (see remarks) **IP**: yes **ICC**: 1 : 1000 up to 1 : 5000 **IHC**: 1 : 500 up to 1 : 1000 **IHC-P (FFPE)**: 1 : 200 **IHC-Fr**: 1 : 750 (see remarks) **ExM**: external data (see remarks) **Clarity**: external data (see remarks) **EM**: external data (see remarks) **FACS**: yes
Immunogen	Recombinant protein corresponding to residues near the carboxy terminus of rat VGLUT 1 (UniProt Id: Q62634)
Reactivity	Reacts with: rat (Q62634), mouse (Q3TXX4), human (Q9P2U7), cow. Other species not tested yet.
Specificity	K.O. validated PubMed: 34876472
Matching control	135-3P
Remarks	**WB**: To avoid protein aggregation, do not heat samples for SDS-PAGE. **IHC-Fr**: 5 min MeOH and PFA fixation are possible. **ExM**: 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).

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 135 304

Inhibition of LRRK2 kinase activity promotes anterograde axonal transport and presynaptic targeting of α-synuclein.
Brzozowski CF, Hijaz BA, Singh V, Gcwensa NZ, Kelly K, Boyden ES, West AB, Sarkar D, Volpicelli-Daley LA
Acta neuropathologica communications (2021) 91: 180. . **WB, ICC, IHC, EXM; tested species: mouse**

Early α-synuclein aggregation decreases corticostriatal glutamate drive and synapse density.
Brzozowski CF, Challa H, Gcwensa NZ, Hall D, Nabert D, Chambers N, Gallardo I, Millet M, Volpicelli-Daley L, Moehle MS
Neurobiology of disease (2025) 210: 106918. . **WB, IHC_FR, EXM; tested species: mouse**

Quantitative comparison of glutamatergic and GABAergic synaptic vesicles unveils selectivity for few proteins including MAL2, a novel synaptic vesicle protein.
Grønborg M, Pavlos NJ, Brunk I, Chua JJ, Münster-Wandowski A, Riedel D, Ahnert-Hilger G, Urlaub H, Jahn R
The Journal of neuroscience : the official journal of the Society for Neuroscience (2010) 301: 2-12. . **ICC, IHC, EM**

Prenatal interleukin 6 elevation increases glutamatergic synapse density and disrupts hippocampal connectivity in offspring.
Mirabella F, Desiato G, Mancinelli S, Fossati G, Rasile M, Morini R, Markicevic M, Grimm C, Amegandjin C, Termanini A, Peano C, et al.
Immunity (2021) 5411: 2611-2631.e8. . **WB, ICC, IHC; tested species: mouse**

Astrocyte-Derived PTPRZ1 Regulates Excitatory Synapse Density in the Mouse Cortex.
Eaker AR, Spence-Osorio HE, Coble MG, Dogan BC, Baldwin KT
eNeuro (2026) 134: . . **ICC, IHC; tested species: rat,mouse**

Deletion of the SHORT Syndrome Gene Prkce Results in Brain Atrophy and Cognitive and Motor Behavior Deficits in Mice.
Bao YL, Duan WP, Yang Y, Lin Z, Shen Y, Zheng R, Wang XT
Neuroscience bulletin (2025) : . . **WB, IHC; tested species: mouse**

Nonapoptotic caspase-3 guides C1q-dependent synaptic phagocytosis by microglia.
Andoh M, Shinoda N, Taira Y, Araki T, Kasahara Y, Takeuchi H, Miura M, Ikegaya Y, Koyama R
Nature communications (2025) 161: 918. . **ICC, IHC; tested species: mouse**

Microglial Extracellular Vesicles Mediate C1q Deposition at the Pre-Synapse and Promote Synaptic Pruning.
D'Arrigo G, Cutugno G, Golia MT, Sironi F, Lombardi M, Colombo SF, Frigerio R, Cretich M, Gagni P, Battocchio E, Barone C, et al.
Journal of extracellular vesicles (2025) 1412: e70173. . **ICC, IHC; tested species: mouse**

Altered expression of Presenilin2 impacts endolysosomal homeostasis and synapse function in Alzheimer's disease-relevant brain circuits.
Perdok A, Van Acker ZP, Vrancx C, Sannerud R, Vorsters I, Verrengia A, Callaerts-Végh Z, Creemers E, Gutiérrez Fernández S, D'hauw B, Serneels L, et al.
Nature communications (2024) 151: 10412. . **WB, ICC; tested species: mouse**

Disruption of the autism-associated Pcdh9 gene leads to transcriptional alterations, synapse overgrowth, and defective network activity in the CA1.
Miozzo F, Murru L, Maiellano G, di Iasio I, Zippo AG, Zambrano Avendano A, Metodieva VD, Riccardi S, D'Aliberti D, Spinelli S, Canu T, et al.
The Journal of neuroscience : the official journal of the Society for Neuroscience (2024) 4450: . . **WB, ICC; tested species: rat**

Access the online factsheet including applicable protocols at https://sysy.com/product/135304 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.