SYSY Antibodies

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VGLUT2 (SLC17A6)

Cat.No. 135 404; 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 : 1000 (AP staining) (see remarks) **IP**: yes **ICC**: 1 : 200 up to 1 : 500 **IHC**: 1 : 200 up to 1 : 500 **IHC-P (FFPE)**: 1 : 500 **iDISCO**: external data (see remarks) **EM**: external data (see remarks)
Immunogen	Synthetic peptide corresponding to residues near the carboxy terminus of rat VGLUT2 (UniProt Id: Q9JI12)
Reactivity	Reacts with: rat (Q9JI12), mouse (Q8BLE7). Other species not tested yet.
Specificity	K.O. validated PubMed: 25357191
Matching control	135-4P
Remarks	This antibody is highly recommended as a marker for glutamatergic nerve terminals. **WB**: To avoid protein aggregation, do not heat samples for SDS-PAGE. **iDISCO**: 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 **2 VGLUT2**, also referred to as **DNPI** and **SLC17A6**, has a more restricted expression than the related VGLUT1. Like VGLUT1, it 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.

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

Selected References for 135 404

Hevin-calcyon interaction promotes synaptic reorganization after brain injury.
Kim JH, Jung HG, Kim A, Shim HS, Hyeon SJ, Lee YS, Han J, Jung JH, Lee J, Ryu H, Park JY, et al.
Cell death and differentiation (2021) 289: 2571-2588. . **WB, ICC, IHC; tested species: mouse**

Structural and functional connections between the median and the ventrolateral preoptic nucleus.
Walter A, van der Spek L, Hardy E, Bemelmans AP, Rouach N, Rancillac A
Brain structure & function (2019) 2249: 3045-3057. . **IHC, IDISCO; 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**

Vesicular Glutamate Transporters (SLCA17 A6, 7, 8) Control Synaptic Phosphate Levels.
Cheret C, Ganzella M, Preobraschenski J, Jahn R, Ahnert-Hilger G
Cell reports (2021) 342: 108623. . **WB, ICC; tested species: human,mouse**

An essential role of acetylcholine-glutamate synergy at habenular synapses in nicotine dependence.
Frahm S, Antolin-Fontes B, Görlich A, Zander JF, Ahnert-Hilger G, Ibañez-Tallon I
eLife (2015) 4: e11396. . **WB, IHC**

Splice-specific roles of glycine receptor alpha3 in the hippocampus.
Eichler SA, Förstera B, Smolinsky B, Jüttner R, Lehmann TN, Fähling M, Schwarz G, Legendre P, Meier JC
The European journal of neuroscience (2009) 306: 1077-91. . **ICC, IHC; tested species: mouse**

Cadherins mediate cocaine-induced synaptic plasticity and behavioral conditioning.
Mills F, Globa AK, Liu S, Cowan CM, Mobasser M, Phillips AG, Borgland SL, Bamji SX
Nature neuroscience (2017) 204: 540-549. . **EM; tested species: mouse**

Alzheimer's Protection by PLCγ2 Compacts Plaques, Redistributes Microglia, and Protects Synapses in AppNL -G-F Mice.
Bevan RJ, Maguire E, Mackinnon E, Salis E, Phillips T, Simonazzi E, Vassileva M, Allen ND, Williams J, Taylor PR
Glia (2026) 748: e70192. . **IHC; tested species: mouse**

Diversity and sensorimotor specialization of head direction cells in the mouse thalamus.
Hijazi S, Jiang S, Wülfing MS, Quach J, Lachance PA, Hasselmo ME, Viney TJ
Current biology : CB (2026) 3612: 3114-3130.e6. . **IHC; tested species: mouse**

Astrocyte-microglia crosstalk through Hevin and Toll-like receptor signaling controls developmental thalamocortical synapse refinement.
Ramirez JJ, Hardin EJ, Sakers K, Kim J, Colón Ortiz C, Savage JT, Hanamsagar R, Block CL, Singh SK, Bilbo SD, Eroglu C, et al.
Neuron (2026) : . . **IHC; tested species: mouse**

Microglial Pruning of Excitatory Synapses in the Hippocampus Is Complement C3-Independent in Physiological and Neuroinflammatory States.
Salter EW, Kadia A, Zhang L, Thacker JS, Choi SL, Ralph LT, Lei G, Jin F, Georgiou J, Collingridge GL
Glia (2026) 747: e70154. . **IHC; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/135404 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.