SYSY Antibodies

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VGLUT2 (SLC17A6)

Cat.No. 135 421; 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_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 (AP staining) (see remarks) **IP**: yes **ICC**: 1 : 500 **IHC**: 1 : 200 up to 1 : 500 **IHC-P (FFPE)**: 1 : 500 **IHC-G**: 1 : 500 (see remarks) **ExM**: external data (see remarks)
Clone	95E11
Subtype	IgG2a (κ light chain)
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
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. **IHC-G**: 9% glyoxal fixation is recommended. **ExM**: 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 135 421

Colocalization of different neurotransmitter transporters on synaptic vesicles is sparse except for VGLUT1 and ZnT3.
Upmanyu N, Jin J, Emde HV, Ganzella M, Bösche L, Malviya VN, Zhuleku E, Politi AZ, Ninov M, Silbern I, Leutenegger M, et al.
Neuron (2022) : . . **WB, UPTAKE; tested species: rat**

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; tested species: mouse**

Enhanced engulfment by microglia and oligodendrocyte precursor cells contributes to synapse loss in the primary visual cortex following optic nerve injury.
Hu Q, Li D, Fu Y, Zhang X, Huang Y, Zhang Y, Wang J, Liu L, Yu M
Brain research bulletin (2026) 241: 111961. . **WB, IHC; tested species: mouse**

Mapping proteomic composition of excitatory postsynaptic sites in the cerebellar cortex.
Robinson K, Delhaye M, Craig AM
Frontiers in molecular neuroscience (2024) 17: 1381534. . **EXM; tested species: mouse**

Glutamatergic Heterogeneity in the Neuropeptide Projections From the Lateral Hypothalamus to the Mouse Olfactory Bulb.
Qi M, Won J, Rodriguez C, Storace DA
The Journal of comparative neurology (2026) 5341: e70118. . **IHC; tested species: mouse**

Protocol to study synapse density or volume-SynDOVE-in brain using confocal microscopy and Imaris three-dimensional surface rendering software.
Gcwensa NZ, Long KY, Manabat AF, Volpicelli-Daley LA
STAR protocols (2026) 72: 104465. . **IHC; tested species: mouse**

Overinhibition mediated by parvalbumin interneurons in the medial prefrontal cortex might contribute to LPS-induced depression-like behavior in mice.
Shi C, Fan D, Liu K, Hu X, Gao Y, Liu QR, Wu X, Ji M
Journal of psychiatric research (2025) 191: 417-429. . **IHC; tested species: mouse**

Conditional mGluR5 Knockout in Glutamatergic Pathways Disrupts the Development of Excitatory Synaptic Transmission onto Mouse MNTB Neurons.
Wang H, Alquraish D, Yu X, Wang Y, Lu Y
Journal of neurophysiology (2025) : . . **IHC; tested species: mouse**

Thalamus enables active dendritic coupling of inputs arriving at different cortical layers.
Bast A, Guest JM, Fruengel R, Narayanan RT, de Kock CPJ, Oberlaender M
Nature communications (2025) 161: 8327. . **IHC; tested species: rat**

Excitatory synaptic structural abnormalities produced by templated aggregation of α-syn in the basolateral amygdala.
Gcwensa NZ, Russell DL, Long KY, Brzozowski CF, Liu X, Gamble KL, Cowell RM, Volpicelli-Daley LA
Neurobiology of disease (2024) 199: 106595. . **IHC; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/135421 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.