SYSY Antibodies

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VGLUT2 (SLC17A6)

Cat.No. 135 403; 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 **IHC**: 1 : 250 up to 1 : 1000 **IHC-P (FFPE)**: 1 : 500 **ELISA**: (see remarks)
Immunogen	Synthetic peptide corresponding to residues near the carboxy terminus of rat VGLUT2 (UniProt Id: Q9JI12)
Reactivity	Reacts with: human (Q9P2U8), rat (Q9JI12), mouse (Q8BLE7), chicken. Other species not tested yet.
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. **ELISA**: The ELISA-protocol for membrane proteins is required.

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 135 403

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; 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**

Target-derived matricryptins organize cerebellar synapse formation through α3β1 integrins.
Su J, Stenbjorn RS, Gorse K, Su K, Hauser KF, Ricard-Blum S, Pihlajaniemi T, Fox MA
Cell reports (2012) 22: 223-30. . **WB, ICC, IHC; tested species: mouse**

Transient synaptic zinc-positive thalamocortical terminals in the developing barrel cortex.
Ichinohe N, Potapov D, Rockland KS
The European journal of neuroscience (2006) 244: 1001-10. . **IHC, EM; tested species: rat**

Loss of Brain-Derived Estrogen Is Associated With Sex- and Age-Dependent Alterations in Memory, Affective Behavior, and Hippocampal Extracellular Matrix Gene Expression.
Piehl NC, Halle AW, Rodriguez G, Locci A, Kujawa S, Haywood C, Coon J, McNally RP, Karim ZA, You T, Dong H, et al.
Aging cell (2026) 256: e70551. . **WB, IHC; tested species: mouse**

Prenatal alcohol exposure impairs offspring cognition through oxidative stress disrupting CREB/BDNF/TrkB signaling and GABAergic neuron deficits.
Zeng X, Wu M, Cai Y, Chen H, Sun M, Yang H
Food and chemical toxicology : an international journal published for the British Industrial Biological Research Association (2026) 207: 115820. . **WB, IHC; 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**

Sensory neurons drive pancreatic cancer progression through glutamatergic neuron-cancer pseudo-synapses.
Ren L, Liu C, Çifcibaşı K, Ballmann M, Rammes G, Mota Reyes C, Tokalov S, Klingl A, Grünert J, Goyal K, Neckel PH, et al.
Cancer cell (2025) : . . **ICC, IHC; tested species: human,mouse**

SLC13A5/sodium-citrate co-transporter overexpression causes disrupted white matter integrity and an autistic-like phenotype.
Rigby MJ, Orefice NS, Lawton AJ, Ma M, Shapiro SL, Yi SY, Dieterich IA, Frelka A, Miles HN, Pearce RA, Yu JPJ, et al.
Brain communications (2022) 41: fcac002. . **WB, ICC; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/135403 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.