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

VGLUT1/2

Cat.No. 135 503; 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 (AP staining) (see remarks) **IP**: not tested yet **ICC**: external data (see remarks) **IHC**: 1 : 100 up to 1 : 500 **IHC-P (FFPE)**: not tested yet
Immunogen	Synthetic peptide corresponding to AA 324 to 339 from rat VGLUT1 (UniProt Id: Q62634)
Reactivity	Reacts with: human (Q9P2U7, Q9P2U8), rat (Q62634, Q9JI12), mouse (Q3TXX4, Q8BLE7), mammals, chicken, zebrafish, frog. Other species not tested yet.
Specificity	Epitope identical in VGLUT 1 and VGLUT 2, one mismatch in VGLUT 3.
Remarks	This antibody is less powerful compared to those directed against the C-termini of VGLUTs but can be used for non-mammals like chicken and zebrafish. **WB**: To avoid protein aggregation, do not heat samples for SDS-PAGE. This antibody produces only a very weak and hardly detectable signal in westernblots on zebrafish brain derived samples. **ICC**: This antibody has been successfully applied and published for this method by customers (see application-specific references). It has not been validated using our standard protocols.

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** , VGLUT 1 also referred to as **BNPI** and **SLC17A7**, was originally identified as a brain specific phosphate transporter. Like the related VGLUT 2, VGLUT 1 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.
VGLUT 1 and VGLUT 2 show complementary expression patterns. Together, they are currently the best markers for glutamatergic nerve terminals and glutamatergic synapses.

Selected References for 135 503

Composition of isolated synaptic boutons reveals the amounts of vesicle trafficking proteins.
Wilhelm BG, Mandad S, Truckenbrodt S, Kröhnert K, Schäfer C, Rammner B, Koo SJ, Claßen GA, Krauss M, Haucke V, Urlaub H, et al.
Science (New York, N.Y.) (2014) 3446187: 1023-8. . **WB, ICC; tested species: rat**

Neurotransmitter Switching Regulated by miRNAs Controls Changes in Social Preference.
Dulcis D, Lippi G, Stark CJ, Do LH, Berg DK, Spitzer NC
Neuron (2017) 956: 1319-1333.e5. . **IHC; tested species: frog**

1 Hz Low-Frequency Repetitive Transcranial Magnetic Stimulation Ameliorates Epilepsy by Suppressing Interferon-γ Signaling-Dependent Microglial Synaptic Phagocytosis in Mice.
Lin D, Wang D, Xiao N
CNS neuroscience & therapeutics (2026) 326: e70979. . **IHC; tested species: mouse**

Hyperactive delta isoform of PI3 kinase enables long-distance regeneration of adult rat corticospinal tract.
Karova K, Polcanova Z, Knight L, Suchankova S, Nieuwenhuis B, Holota R, Herynek V, Machova Urdzikova L, Turecek R, Kwok JC, van den Herik J, et al.
Molecular therapy : the journal of the American Society of Gene Therapy (2025) : . . **IHC; tested species: rat**

Repetitive concussions promote microglia-mediated engulfment of presynaptic excitatory input associated with cognitive dysfunction.
Chahin M, Mutschler J, Dzhuleva SP, Dieterle C, Jimenez LR, Bhattarai SR, Van Steenbergen V, Bareyre FM
Communications biology (2025) 81: 335. . **IHC; tested species: mouse**

Meprin β Modulates Brevican Proteolysis Impairing Neural Plasticity and Memory Formation.
Keller M, Gallagher C, Kreiselmaier S, Bickenbach K, Schmitt U, Marengo L, Taghikhah D, Abukhalaf M, Tholey A, Becker-Pauly C, Mittmann T, et al.
FASEB journal : official publication of the Federation of American Societies for Experimental Biology (2025) 3910: e70616. . **IHC; tested species: mouse**

Synaptogenic gene therapy with FGF22 improves circuit plasticity and functional recovery following spinal cord injury.
Aljović A, Jacobi A, Marcantoni M, Kagerer F, Loy K, Kendirli A, Bräutigam J, Fabbio L, Van Steenbergen V, Pleśniar K, Kerschensteiner M, et al.
EMBO molecular medicine (2023) : e16111. . **IHC; tested species: mouse**

Coordinated neurostimulation promotes circuit rewiring and unlocks recovery after spinal cord injury.
Van Steenbergen V, Burattini L, Trumpp M, Fourneau J, Aljović A, Chahin M, Oh H, D'Ambra M, Bareyre FM
The Journal of experimental medicine (2023) 2203: . . **IHC; tested species: mouse**

16pdel lipid changes in iPSC-derived neurons and function of FAM57B in lipid metabolism and synaptogenesis.
Tomasello DL, Kim JL, Khodour Y, McCammon JM, Mitalipova M, Jaenisch R, Futerman AH, Sive H
iScience (2022) 251: 103551. . **ICC; tested species: human**

Visual Cortex Engagement in Retinitis Pigmentosa.
Pietra G, Bonifacino T, Talamonti D, Bonanno G, Sale A, Galli L, Baroncelli L
International journal of molecular sciences (2021) 2217: . . **WB; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/135503 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.