SYSY Antibodies

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VGLUT1 (SLC17A7)

Cat.No. 135 316; Polyclonal chicken antibody, 200 µl antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	200 µl antibody, lyophilized. For **reconstitution** add 200 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**: not tested yet **ICC**: 1 : 500 up to 1 : 1000 **IHC**: 1 : 500 **IHC-P (FFPE)**: 1 : 500 **IHC-Fr**: 1 : 500 up to 1 : 2000 (see remarks)
Immunogen	Synthetic peptide corresponding to residues near the carboxy terminus of rat VGLUT 1 (UniProt Id: Q62634)
Reactivity	Reacts with: rat (Q62634), mouse (Q3TXX4). Other species not tested yet.
Specificity	K.O. validated
Matching control	135-0P
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-Fr**: 4% formaldehyde/PFA fixation is recommended.

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 135 316

Presynaptic PRRT2 deficiency causes cerebellar dysfunction and paroxysmal kinesigenic dyskinesia.
Calame DJ, Xiao J, Khan MM, Hollinsworth TJ, Xue Y, Person AL, LeDoux MS
Neuroscience (2020) : . . **IHC-P; tested species: mouse**

Isolation of Human CD49f+ Astrocytes and In Vitro iPSC-Based Neurotoxicity Assays.
Barbar L, Rusielewicz T, Zimmer M, Kalpana K, Fossati V
STAR protocols (2020) 13: 100172. . **ICC; tested species: human**

AAV9-Mediated Delivery of miR-23a Reduces Disease Severity in Smn2B-/SMA Model Mice.
Kaifer KA, Villalón E, O'Brien BS, Sison SL, Smith CE, Simon ME, Marquez J, O'Day S, Hopkins AE, Neff R, Rindt H, et al.
Human molecular genetics (2019) : . . **IHC; tested species: mouse**

Cerebellar Resistance to Amyloid Plaque Deposition and Elevated Microglial ECM Proteoglycan Uptake in 5xFAD Mice.
Cangalaya C, Düsedau HP, Dunay IR, Dityatev A, Stoyanov S
Cells (2026) 152: . . **IHC; tested species: mouse**

Broad glucagon-like peptide-1 (GLP-1) receptor distribution enhances glutamatergic transmission throughout the mouse cerebellar cortex.
Ritchey CR, Peterson B, Peters JH, Rossi DJ
Neuropharmacology (2026) 295: 110993. . **IHC; tested species: mouse**

Engineered 3D immuno-glial-neurovascular human miBrain model.
Stanton AE, Bubnys A, Agbas E, James B, Park DS, Jiang A, Pinals RL, Liu L, Truong N, Loon A, Staab C, et al.
Proceedings of the National Academy of Sciences of the United States of America (2025) 12242: e2511596122. . **ICC; tested species: human**

The effects of amyloidosis and aging on glutamatergic and GABAergic synapses, and interneurons in the barrel cortex and non-neocortical brain regions.
Qu T
Frontiers in neuroanatomy (2025) 19: 1526962. . **IHC; tested species: mouse**

Complement C4b as a key mediator of synaptic loss and cognitive decline in brain aging.
Zheng Y, Liu T, Luo L, Li F, Tang C, Xu C, Chen C, Yang L, Xiao Y, Wang Z, Yuan Q, et al.
Molecular therapy : the journal of the American Society of Gene Therapy (2025) 3312: 6314-6331. . **IHC; tested species: mouse**

Real-time mechanisms of exacerbated synaptic remodeling by microglia in acute models of systemic inflammation and tauopathy.
Cangalaya C, Wegmann S, Sun W, Diez L, Gottfried A, Richter K, Stoyanov S, Pakan J, Fischer KD, Dityatev A
Brain, behavior, and immunity (2023) : . . **IHC; tested species: mouse**

iPSC-derived microglia carrying the TREM2 R47H/+ mutation are proinflammatory and promote synapse loss.
Penney J, Ralvenius WT, Loon A, Cerit O, Dileep V, Milo B, Pao PC, Woolf H, Tsai LH
Glia (2023) : . . **IHC; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/135316 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.