SYSY Antibodies

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VGLUT1 (SLC17A7)

Cat.No. 135 011BT; Monoclonal mouse antibody, 100 µg purified IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µg purified IgG, lyophilized, labeled with Biotin. 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 up to 1 : 5000 (AP staining) (see remarks) **IP**: not tested yet **ICC**: 1 : 1000 (see remarks) **IHC**: 1 : 500 **IHC-P (FFPE)**: 1 : 200 up to 1 : 1000
Label	biotin
Clone	68B7
Subtype	IgG1 (κ light chain)
Immunogen	Synthetic peptide corresponding to AA 542 to 560 from rat VGLUT1 (UniProt Id: Q62634)
Reactivity	Reacts with: mouse (Q3TXX4), rat (Q62634), human (Q9P2U7). Other species not tested yet. Predicted to cross-react with cat due to high sequence homology.
Specificity	K.O. validated
Matching control	135-0P
Remarks	**WB**: To avoid protein aggregation, do not heat samples for SDS-PAGE. This antibody is highly recommended for Western blot experiments. **ICC**: The following fixatives are possible: 4% formaldehyde/PFA, acetone.

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 011BT

LT-102, an AMPA receptor potentiator, alleviates depression-like behavior and synaptic plasticity impairments in prefrontal cortex induced by sleep deprivation.
Zheng Y, Yu X, Wei L, Chen Q, Xu Y, Ni P, Deng W, Guo W, Hu X, Qi X, Li T, et al.
Journal of affective disorders (2024) 367: 18-30. . **IHC; tested species: mouse**

Multiple genes in a single GWAS risk locus synergistically mediate aberrant synaptic development and function in human neurons.
Zhang S, Zhang H, Forrest MP, Zhou Y, Sun X, Bagchi VA, Kozlova A, Santos MD, Piguel NH, Dionisio LE, Sanders AR, et al.
Cell genomics (2023) 39: 100399. . **ICC; tested species: human**

Selected General References

Identification of a vesicular glutamate transporter that defines a glutamatergic phenotype in neurons.
Takamori S et al. Nature (2000) PubMed:11001057

Uptake of glutamate into synaptic vesicles by an inorganic phosphate transporter.
Bellocchio EE et al. Science (2000) PubMed:10938000

The localization of the brain-specific inorganic phosphate transporter suggests a specific presynaptic role in glutamatergic transmission.
Bellocchio EE et al. J. Neurosci. (1998) PubMed:9786972

Cloning and expression of a cDNA encoding a brain-specific Na(+)-dependent inorganic phosphate cotransporter.
Ni B et al. Proc. Natl. Acad. Sci. U.S.A. (1994) PubMed:8202535

Access the online factsheet including applicable protocols at https://sysy.com/product/135011BT 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.