SYSY Antibodies

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# VGLUT3 (SLC17A8)

**Cat.No. 135 211; Monoclonal mouse antibody, 100 µg purified IgG (lyophilized)**

## Data Sheet

| | |
|---|---|
| Reconstitution/ Storage | 100 µg purified IgG, lyophilized. Albumin and azide were added for stabilization.<br>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.<br>Antibodies should be stored at +4°C when still lyophilized. Do not freeze!<br>For detailed information, see back of the data sheet. |
| Applications | **WB**: 1 : 1000 (AP staining) (see remarks)<br>**IP**: yes<br>**ICC**: not tested yet<br>**IHC**: 1 : 500<br>**IHC-P (FFPE)**: 1 : 100 up to 1 : 500 |
| Clone | 57A8 |
| Subtype | IgG2a (κ light chain) |
| Immunogen | Synthetic peptide corresponding to residues near the carboxy terminus of mouse VGLUT 3 (UniProt Id: Q8BFU8) |
| Reactivity | Reacts with: rat (Q7TSF2), mouse (Q8BFU8).<br>Other species not tested yet. |
| Remarks | **WB**: To avoid protein aggregation, do not heat samples for SDS-PAGE.<br>Due to the low abundance of this protein in the brain, immunoblotting is difficult. |

**TO BE USED IN VITRO / FOR RESEARCH ONLY**
**NOT TOXIC, NOT HAZARDOUS, NOT INFECTIOUS, NOT CONTAGIOUS**

## Background

Vesicular glutamate transporter 3 (VGLUT3), encoded by SLC17A8, is a member of the vesicular glutamate transporter family that mediates the uptake of glutamate into synaptic vesicles. Unlike VGLUT1 and VGLUT2, VGLUT3 is expressed in distinct populations of serotonergic, cholinergic, GABAergic and glutamatergic neurons, including neurons in the cortex, hippocampus, striatum and raphe nuclei [1–3]. A co-localization with the acetylcholine transporter VAChT and the monoamine transporter 2 VMaT2 has been reported in distinct neuronal populations, particularly during development [4,5]. VGLUT3 enables glutamate co-transmission in neurons that primarily use other neurotransmitters and can modulate the storage and release of serotonin, acetylcholine and GABA. In particular, VGLUT3 contributes to vesicular synergy in striatal cholinergic interneurons, thereby influencing cholinergic signaling [1,2].

VGLUT3 dysfunction has been associated with several neurological and sensory disorders. In the auditory system, VGLUT3 is essential for glutamate release from cochlear inner hair cells, and pathogenic SLC17A8 variants cause autosomal-dominant nonsyndromic hearing loss (DFNA25) [6]. VGLUT3 has also been implicated in Parkinson's disease and L-DOPA-induced dyskinesia, as well as pathological pain processing [2].

## Selected References for 135 211

Proteomic analysis reveals the composition of glutamatergic organelles of auditory inner hair cell.
Cepeda AP, Ninov M, Neef J, Parfentev I, Kusch K, Reisinger E, Jahn R, Moser T, Urlaub H
Molecular & cellular proteomics : MCP (2023) : 100704. . **WB, IP; tested species: mouse**

Synaptic Organization of VGLUT3 Expressing Low-Threshold Mechanosensitive C Fiber Terminals in the Rodent Spinal Cord.
Larsson M, Broman J
eNeuro () 61: . . **IHC, EM; tested species: rat**

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) : . . **UPTAKE; tested species: rat**

Regulation of perisomatic synapses from cholecystokinin basket interneurons through NrCAM and Ankyrin B.
Oldre EN, Webb BD, Sperringer JE, Maness PF
Current research in neurobiology (2025) 8: 100150. . **IHC; tested species: mouse**

Regenerated hair cells in the neonatal cochlea are innervated and the majority co-express markers of both inner and outer hair cells.
Heuermann ML, Matos S, Hamilton D, Cox BC
Frontiers in cellular neuroscience (2022) 16: 841864. . **IHC; tested species: mouse**

Early-life sevoflurane exposure impairs fear memory by suppressing extracellular signal-regulated kinase signaling in the bed nucleus of stria terminalis GABAergic neurons.
Zhao XP, Zhong F, Luo RY, Zhang YL, Luo C, Li H, Dai RP
Neuropharmacology (2021) 191: 108584. . **IHC; tested species: mouse**

## Selected General References

The diverse roles of vesicular glutamate transporter 3.
Seal RP et al. Handb Exp Pharmacol (2006) PubMed:16722234

A New Player in the Hippocampus: A Review on VGLUT3+ Neurons and Their Role in the Regulation of Hippocampal Activity and Behaviour.
Fazekas CL et al. Int J Mol Sci (2022) PubMed:35054976

Access the online factsheet including applicable protocols at https://sysy.com/product/135211 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.