SYSY Antibodies

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VGLUT3 (SLC17A8)

Cat.No. 135-2P; control protein, 100 µg protein (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µg protein, lyophilized. For **reconstitution** add 100 µl H_2O to get a 1mg/ml solution in TBS. Then aliquot and store at -20°C to -80°C until use. Control proteins should be stored at +4°C when still lyophilized. Do not freeze! For detailed information, see back of the data sheet.
Immunogen	Recombinant protein corresponding to residues near the carboxy terminus of mouse VGLUT 3 (UniProt Id: Q8BFU8)
Recommended dilution	Optimal concentrations should be determined by the end-user.
Matching antibodies	135 203, 135 204
Remarks	This control protein consists of the antigen (aa 543 - 601 of mouse VGLUT 3) that has been used for immunization. It has been tested in preadsorption experiments and blocks efficiently and specifically the corresponding signal in Western blots. The amount of protein needed for efficient blocking depends on the titer and on the affinity of the antibody to the antigen.

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 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

Leveraging VGLUT3 Functions to Untangle Brain Dysfunctions.
Favier M et al. Trends Pharmacol Sci (2021) PubMed:33775453

Impairment of SLC17A8 encoding vesicular glutamate transporter-3, VGLUT3, underlies nonsyndromic deafness DFNA25 and inner hair cell dysfunction in null mice.
Ruel J et al. Am J Hum Genet (2008) PubMed:18674745

The identification of vesicular glutamate transporter 3 suggests novel modes of signaling by glutamate.
Fremeau RT et al. Proc. Natl. Acad. Sci. U.S.A. (2002) PubMed:12388773

A third vesicular glutamate transporter expressed by cholinergic and serotoninergic neurons.
Gras C et al. J. Neurosci. (2002) PubMed:12097496

Access the online factsheet including applicable protocols at https://sysy.com/product/135-2P 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.