

## VGLUT1

Cat.No. 135 302; Polyclonal rabbit antibody, 200 µl antiserum (lyophilized)

### Data Sheet

Reconstitution/Storage	200 µl antiserum, lyophilized. For <b>reconstitution</b> add 200 µl H <sub>2</sub> O, 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	<b>WB:</b> 1 : 1000 up to 1 : 10000 (AP staining) <b>IP:</b> yes <b>ICC:</b> 1 : 1000 up to 1 : 10000 <b>IHC:</b> 1 : 500 up to 1 : 1000 <b>IHC-P:</b> 1 : 500 <b>ExM:</b> external data (see remarks)
Immunogen	Recombinant protein corresponding to residues near the carboxy terminus of rat VGLUT 1 (UniProt Id: Q62634)
Reactivity	Reacts with: human (Q9P2U7), rat (Q62634), mouse (Q3TXX4), cow, goat, dog, sheep, ape. Other species not tested yet.
Specificity	K.O. validated
Matching control	135-3P
Remarks	This antibody is highly recommended as a marker for glutamatergic nerve terminals. <b>WB:</b> To avoid protein aggregation, do not heat samples for SDS-PAGE. <b>ExM:</b> This antibody has been successfully used for the epitope-preserving magnified analysis of the proteome (eMAP) expansion microscopy method (Park et al. 2021. PMID: <a href="#">34767453</a> ). Variance from the standard protocol: Expansion solution for imaging: 0.02X PBS

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

### Background

The vesicular **glutamate transporter 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 135 302

Cerebellar synaptogenesis is compromised in mouse models of DYT1 dystonia.  
Vanni V, Puglisi F, Bonsi P, Ponterio G, Maltese M, Pisani A, Mandolesi G  
Experimental neurology (2015) 271: 457-67. . **WB, ICC, IHC; tested species: mouse**

Regulation of the Hippocampal Network by VGLUT3-Positive CCK- GABAergic Basket Cells.  
Fasano C, Rocchetti J, Pietrajtis K, Zander JF, Manseau F, Sakae DY, Marcus-Sells M, Ramet L, Morel LJ, Carrel D, Dumas S, et al.  
Frontiers in cellular neuroscience (2017) 11: 140. . **IP, WB; tested species: mouse**

Mutations in the transcriptional regulator MeCP2 severely impact key cellular and molecular signatures of human astrocytes during maturation.  
Sun J, Osenberg S, Irwin A, Ma LH, Lee N, Xiang Y, Li F, Wan YW, Park IH, Maletic-Savatic M, Ballas N, et al.  
Cell reports (2023) 421: 111942. . **ICC, IHC; tested species: human**

Defective lipid signalling caused by mutations in PIK3C2B underlies focal epilepsy.  
Gozzelino L, Kochlamazashvili G, Baldassari S, Mackintosh AI, Licchetta L, Iovino E, Liu YC, Bennett CA, Bennett MF, Damiano JA, Zsurka G, et al.  
Brain : a journal of neurology (2022) 1457: 2313-2331. . **WB, IHC; tested species: mouse**

Vesicular Glutamate Transporters (SLCA17 A6, 7, 8) Control Synaptic Phosphate Levels.  
Cheret C, Ganzella M, Preobraschenski J, Jahn R, Ahnert-Hilger G  
Cell reports (2021) 342: 108623. . **WB, ICC; tested species: human,mouse**

A complement-microglial axis driving inhibitory synapse related protein loss might contribute to systemic inflammation-induced cognitive impairment.  
Li SM, Li B, Zhang L, Zhang GF, Sun J, Ji MH, Yang JJ  
International immunopharmacology (2020) 87: 106814. . **WB, IHC; tested species: mouse**

Generation and Characterization of Anti-VGLUT Nanobodies Acting as Inhibitors of Transport.  
Schenck S, Kunz L, Sahlender D, Pardon E, Geertsma ER, Savtchouk I, Suzuki T, Neldner Y, Štefanić S, Steyaert J, Volterra A, et al.  
Biochemistry (2017) 5630: 3962-3971. . **IP, ICC; tested species: mouse,rat**

Distribution of SNAP25, VAMP1 and VAMP2 in mature and developing deep cerebellar nuclei after estrogen administration.  
Manca P, Mameli O, Caria MA, Torrejón-Escribano B, Blasi J  
Neuroscience (2014) 266: 102-15. . **IHC, WB**

Regulation of glutamate release by heteromeric nicotinic receptors in layer V of the secondary motor region (Fr2) in the dorsomedial shoulder of prefrontal cortex in mouse.  
Aracri P, Amadeo A, Pasini ME, Fascio U, Becchetti A  
Synapse (New York, N.Y.) (2013) 676: 338-57. . **WB, IHC; tested species: mouse**

Neuronal and glial differentiation during lizard (Gallotia galloti) visual system ontogeny.  
Romero-Alemán MM, Monzón-Mayor M, Santos E, Lang DM, Yanes C  
The Journal of comparative neurology (2012) 52010: 2163-84. . **WB, IHC**

Access the online factsheet including applicable protocols at <https://sysy.com/product/135302> or scan the QR-code.



## FAQ - How should I store my antibody?

### Shipping Conditions

- All our antibodies and control proteins / peptides are shipped lyophilized (vacuum freeze-dried) and are stable in this form 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. **They must not be stored in the freezer when still lyophilized!** Temperatures below zero may cause loss of performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long term storage (several months) may lead to aggregation.
- **Control peptides** should be kept at -20°C before reconstitution.

### Long Term Storage after Reconstitution (General Considerations)

- The storage freezer must not be of the frost-free variety ("no-frost freezer"). This cycle between freezing and thawing (to reduce frost-build-up), which is exactly what should be avoided. For the same reason, antibody vials should be placed in an area of the freezer that has minimal temperature fluctuations, for instance towards the back rather than on a door shelf.
- Aliquot the antibody and store frozen (-20°C to -80°C). Avoid very small aliquots (below 20 µl) and use the smallest storage vial or tube possible. The smaller the aliquot, the more the stock concentration is affected by evaporation and adsorption of the antibody to the surface of the storage vial or tube. Adsorption of the antibody to the surface leads to a substantial loss of activity.
- The addition of glycerol to a final concentration of 50% lowers the freezing point of your stock and keeps your antibody at -20°C in liquid state. This efficiently avoids freeze and thaw cycles.

### Product Specific Hints for Storage

#### Control proteins / peptides

- Store at -20°C to -80°C.

#### Monoclonal Antibodies

- **Ascites** and **hybridoma supernatant** should be stored at -20°C up to -80°C. **Prolonged storage at 4°C is not recommended!** Unlike serum, ascites may contain proteases that will degrade the antibodies.
- **Purified IgG** should be stored at -20°C up to -80°C. Adding a carrier protein like BSA will increase long term stability. Many of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

#### Polyclonal Antibodies

- **Crude antisera:** With anti-microbials added, they may be stored at 4°C. However, frozen storage (-20°C up to -80°C) is preferable.
- **Affinity purified antibodies:** Less robust than antisera. Storage at -20°C up to -80°C is recommended. Adding a carrier protein like BSA will increase long term stability. Most of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

#### Fluorescence-labeled Antibodies

- Store as a liquid with 1 : 1 (v/v) glycerol at -20°C. Protect these antibodies from light exposure.

## Avoid repeated freeze-thaw cycles for all antibodies!

## FAQ - How should I reconstitute my antibody?

### Reconstitution

- All our purified antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the amount of deionized water given in the respective datasheet. If higher volumes are preferred, add water as mentioned above and then the desired amount of PBS and a stabilizing carrier protein (e.g. BSA) to a final concentration of 2%. Some of our antibodies already contain albumin. Take this into account when adding more carrier protein. For complete reconstitution, carefully remove the lid. After adding water, briefly vortex the solution. You can spin down the liquid by placing the vial into a 50 ml centrifugation tube filled with paper.
- If desired, add small amounts of azide or thimerosal to prevent microbial growth. This is especially recommended if you want to keep an aliquot at 4°C.
- After reconstitution of fluorescence-labeled antibodies, add 1 : 1 (v/v) glycerol to a final concentration of 50%. This lowers the freezing point of your stock and keeps your antibody in liquid state at -20°C.
- Glycerol may also be added to unlabeled primary antibodies. It is a suitable way to avoid freeze-thaw cycles.
- Please refer to our **tips and hints for subsequent storage** of reconstituted antibodies and control peptides and proteins.