

Rudolf-Wissell-Str. 28a 37079 Göttingen, Germany

Phone: +49 551-50556-0
Fax: +49 551-50556-384
E-mail: sales@sysy.com
Web: www.sysy.com

# VGLUT2 (SLC17A6)

Cat.No. 135 403; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)

# **Data Sheet**

| Reconstitution/<br>Storage | 50 $\mu g$ specific antibody, lyophilized. Affinity purified with the immunogen. Albumin and azide were added for stabilization. For <b>reconstitution</b> add 50 $\mu l$ H <sub>2</sub> O 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: 10000 (AP staining) IP: yes ICC: 1: 500 IHC: 1: 250 up to 1: 1000 IHC-P: 1: 500 ELISA:  |
| Immunogen                  | Synthetic peptide corresponding to residues near the carboxy terminus of rat VGLUT2 (UniProt Id: Q9JI12)   |
| Reactivity                 | Reacts with: human (Q9P2U8), rat (Q9JI12), mouse (Q8BLE7), chicken.<br>Other species not tested yet.   |
| Matching control           | 135-4P   |
| 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.  ELISA: The ELISA-protocol for membrane proteins is required.  |

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

### **Background**

The vesicular glutamate transporter 2 VGLUT2, also referred to as DNPI and SLC17A6, has a more restricted expression than the related VGLUT1. Like VGLUT1, it 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.

For more information on protein expression pattern, please refer to the overview image in our SYSY Antibodies ATLAS.

### Selected References for 135 403

An essential role for vesicular glutamate transporter 1 (VGLUT1) in postnatal development and control of quantal size. Wojcik SM, Rhee JS, Herzog E, Sigler A, Jahn R, Takamori S, Brose N, Rosenmund C

Proceedings of the National Academy of Sciences of the United States of America (2004) 10118: 7158-63. . ICC, WB, IHC; tested species: mouse

Synaptic and vesicular co-localization of the glutamate transporters VGLUT1 and VGLUT2 in the mouse hippocampus. Herzog E, Takamori S, Jahn R, Brose N, Wojcik SM

Journal of neurochemistry (2006) 993: 1011-8.. IHC, IP, WB; tested species: mouse

Target-derived matricryptins organize cerebellar synapse formation through  $\alpha 3\beta 1$  integrins. Su J, Stenbjorn RS, Gorse K, Su K, Hauser KF, Ricard-Blum S, Pihlajaniemi T, Fox MA Cell reports (2012) 22: 223-30. **WB, ICC, IHC; tested species: mouse** 

Transient synaptic zinc-positive thalamocortical terminals in the developing barrel cortex. Ichinohe N, Potapov D, Rockland KS

The European journal of neuroscience (2006) 244: 1001-10. . IHC, EM; tested species: rat

Sensory neurons drive pancreatic cancer progression through glutamatergic neuron-cancer pseudo-synapses.

Ren L, Liu C, Çifcibaşı K, Ballmann M, Rammes G, Mota Reyes C, Tokalov S, Klingl A, Grünert J, Goyal K, Neckel PH, et al. Cancer cell (2025):..ICC, IHC; tested species: human,mouse

SLC13A5/sodium-citrate co-transporter overexpression causes disrupted white matter integrity and an autistic-like phenotype. Rigby MJ, Orefice NS, Lawton AJ, Ma M, Shapiro SL, Yi SY, Dieterich IA, Frelka A, Miles HN, Pearce RA, Yu JPJ, et al. Brain communications (2022) 41: fcac002. WB, ICC; tested species: mouse

Cerebellar developmental deficits underlie neurodegenerative disorder spinocerebellar ataxia type 23. Smeets CJLM, Ma KY, Fisher SE, Verbeek DS

Brain pathology (Zurich, Switzerland) (2021) 312: 239-252. . WB, IHC; tested species: mouse

Vesicular glutamate transporters play a role in neuronal differentiation of cultured SVZ-derived neural precursor cells. Sánchez-Mendoza EH, Bellver-Landete V, Arce C, Doeppner TR, Hermann DM, Oset-Gasque MJ PloS one (2017) 125: e0177069. . **WB, ICC** 

Elevated mutant dynorphin A causes Purkinje cell loss and motor dysfunction in spinocerebellar ataxia type 23. Smeets CJ, Jezierska J, Watanabe H, Duarri A, Fokkens MR, Meijer M, Zhou Q, Yakovleva T, Boddeke E, den Dunnen W, van Deursen J, et al.

Brain: a journal of neurology (2015) 138Pt 9: 2537-52. . WB, IHC

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, IHC; tested species: mouse

Access the online factsheet including applicable protocols at https://sysy.com/product/135403 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 freezedried) 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 a 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 freezethaw cycles.
- Please refer to our tips and hints for subsequent storage of reconstituted antibodies and control peptides and proteins.