SYSY Antibodies

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VGLUT2

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

Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Albumin and azide were added for stabilization. For **reconstitution** add 50 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 : 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. 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 **v**esicular **glu**tamate **t**ransporter **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.

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 α3β1 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**

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**

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**

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**

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**

Transient focal cerebral ischemia significantly alters not only EAATs but also VGLUTs expression in rats: relevance of changes in reactive astroglia.
Sánchez-Mendoza E, Burguete MC, Castelló-Ruiz M, González MP, Roncero C, Salom JB, Arce C, Cañadas S, Torregrosa G, Alborch E, Oset-Gasque MJ, et al.
Journal of neurochemistry (2010) 1135: 1343-55. . **IHC, WB; tested species: rat**

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 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 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 freeze-thaw cycles.
- Please refer to our **tips and hints for subsequent storage** of reconstituted antibodies and control peptides and proteins.