SYSY Antibodies

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VGLUT2

Cat.No. 135 421; Monoclonal mouse antibody, 100 µg purified IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µg purified IgG, lyophilized. Albumin and azide were added for stabilization. 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. 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 (AP staining) **IP**: yes **ICC**: 1 : 500 **IHC**: 1 : 200 up to 1 : 500 **IHC-P**: 1 : 500 **IHC-G**: 1 : 500 **ExM**: external data
Clone	95E11
Subtype	IgG2a (κ light chain)
Immunogen	Synthetic peptide corresponding to residues near the carboxy terminus of rat VGLUT2 (UniProt Id: Q9JI12)
Reactivity	Reacts with: rat (Q9JI12), mouse (Q8BLE7). Other species not tested yet.
Specificity	K.O. validated
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. **IHC-G**: 9% glyoxal fixation is recommended.

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 135 421

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

Early α-synuclein aggregation decreases corticostriatal glutamate drive and synapse density.
Brzozowski CF, Challa H, Gcwensa NZ, Hall D, Nabert D, Chambers N, Gallardo I, Millet M, Volpicelli-Daley L, Moehle MS
Neurobiology of disease (2025) 210: 106918. . **WB, IHC; tested species: mouse**

Mapping proteomic composition of excitatory postsynaptic sites in the cerebellar cortex.
Robinson K, Delhaye M, Craig AM
Frontiers in molecular neuroscience (2024) 17: 1381534. . **EXM; tested species: mouse**

Excitatory synaptic structural abnormalities produced by templated aggregation of α-syn in the basolateral amygdala.
Gcwensa NZ, Russell DL, Long KY, Brzozowski CF, Liu X, Gamble KL, Cowell RM, Volpicelli-Daley LA
Neurobiology of disease (2024) 199: 106595. . **IHC; tested species: mouse**

Microglial activation and hypothalamic structural plasticity in HFD obesity: insights from semaglutide and minocycline.
Rong X, Wei F, Jiang Y, Ma Q, Wang D, Shen J
Journal of lipid research (2024) 662: 100736. . **IHC; tested species: mouse**

Sarm1 knockout modifies biomarkers of neurodegeneration and spinal cord circuitry but not disease progression in the mSOD1G93A mouse model of ALS.
Collins JM, Atkinson RAK, Matthews LM, Murray IC, Perry SE, King AE
Neurobiology of disease (2022) 172: 105821. . **IHC; tested species: mouse**

Vesicular Glutamate Release from Feeder-FreehiPSC-Derived Neurons.
Baldassari S, Cervetto C, Amato S, Fruscione F, Balagura G, Pelassa S, Musante I, Iacomino M, Traverso M, Corradi A, Scudieri P, et al.
International journal of molecular sciences (2022) 2318: . . **WB; tested species: human**

Tonotopic differentiation of presynaptic neurotransmitter-releasing machinery in the auditory brainstem during the prehearing period and its selective deficits in Fmr1 knockout mice.
Yu X, Wang Y
The Journal of comparative neurology (2022) 53018: 3248-3269. . **IHC; tested species: mouse**

In vivo reprogramming of NG2 glia enables adult neurogenesis and functional recovery following spinal cord injury.
Tai W, Wu W, Wang LL, Ni H, Chen C, Yang J, Zang T, Zou Y, Xu XM, Zhang CL
Cell stem cell (2021) 285: 923-937.e4. . **IHC; tested species: mouse**

TDP-43 mislocalization drives neurofilament changes in a novel model of TDP-43 proteinopathy.
Atkinson R, Leung J, Bender J, Kirkcaldie M, Vickers J, King A
Disease models & mechanisms (2021) : . . **IHC; tested species: mouse**

Adult medial habenula neurons require GDNF receptor GFRα1 for synaptic stability and function.
Fernández-Suárez D, Krapacher FA, Pietrajtis K, Andersson A, Kisiswa L, Carrier-Ruiz A, Diana MA, Ibáñez CF
PLoS biology (2021) 1911: e3001350. . **IHC; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/135421 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.