

VGLUT 1

Cat.No. 135 311; 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 ₂ O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C to -80°C until use. For detailed information, see back of the data sheet.
Applications	WB: 1 : 500 up to 1 : 2000 (AP staining) (see remarks) IP: yes (see remarks) ICC: 1 : 100 IHC: 1 : 100 IHC-P/FFPE: 1 : 100 up to 1 : 500 ELISA: yes (see remarks)
Clone	317D5
Subtype	IgG2a (κ light chain)
Immunogen	Recombinant protein corresponding to residues near the carboxy terminus of rat VGLUT 1 (UniProt Id: Q62634)
Epitop	Epitop: AA 542 to 560 from rat VGLUT1 (UniProt Id: Q62634)
Reactivity	Reacts with: rat (Q62634), mouse (Q3TXX4). Other species not tested yet.
Specificity	Specific for VGLUT 1. K.O.
Matching control	135-3P
Remarks	WB: This antibody yields stronger signals in Western blot experiments than cat. no. 135 511 but is less sensitive than cat. no. 135 011 and the polyclonal VGLUT 1 antibodies 135 302, 135 303, 135 304 and 135 306. IP: Coupling to protein A is recommended for IP, since covalent coupling to activated sepharose leads to considerable loss of activity. ELISA: Suitable as capture antibody for sandwich-ELISA with cat. no. 135 303 as detector antibody. The ELISA-protocol for membrane proteins is recommended.

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

Access the online factsheet including applicable protocols at <https://sysy.com/product/135311> or scan the QR-code.



Background

The vesicular **glutamate transporter 1 VGLUT 1**, also referred to as **BNPI** and **SLC17A7**, was originally identified as a brain specific phosphate transporter. Like the related VGLUT 2, VGLUT 1 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.

VGLUT 1 and VGLUT 2 show complementary expression patterns. Together, they are currently the best markers for glutamatergic nerve terminals and glutamatergic synapses.

Selected References for 135 311

- EphA4 is localized in clathrin-coated and synaptic vesicles in adult mouse brain.
Bouvier D, Tremblay ME, Riad M, Corera AT, Gingras D, Horn KE, Fotouhi M, Girard M, Murai KK, Kennedy TE, McPherson PS, et al.
Journal of neurochemistry (2010) 1131: 153-65. . **EM, ICC, IP, WB**
- Expression and function of SNAP-25 as a universal SNARE component in GABAergic neurons.
Tafoya LC, Mameli M, Miyashita T, Guzowski JF, Valenzuela CF, Wilson MC
The Journal of neuroscience : the official journal of the Society for Neuroscience (2006) 2630: 7826-38. . **WB, ICC, IHC**
- Synapsin-dependent reserve pool of synaptic vesicles supports replenishment of the readily releasable pool under intense synaptic transmission.
Vasileva M, Horstmann H, Geumann C, Gitler D, Kuner T
The European journal of neuroscience (2012) 368: 3005-20. . **ELISA**
- Transcription Factor 4 loss-of-function is associated with deficits in progenitor proliferation and cortical neuron content.
Papes F, Camargo AP, de Souza JS, Carvalho VMA, Szeto RA, LaMontagne E, Teixeira JR, Avansini SH, Sánchez-Sánchez SM, Nakahara TS, Santo CN, et al.
Nature communications (2022) 131: 2387. . **ICC; tested species: human**
- Aβ1-16 controls synaptic vesicle pools at excitatory synapses via cholinergic modulation of synapsin phosphorylation.
Anni D, Weiss EM, Guhathakurta D, Akdas YE, Klueva J, Zeitler S, Andres-Alonso M, Huth T, Fejtova A
Cellular and molecular life sciences : CMLS (2021) : . . **ICC; tested species: mouse**
- Generation of Human Neurons by microRNA-Mediated Direct Conversion of Dermal Fibroblasts.
Church VA, Cates K, Capano L, Aryal S, Kim WK, Yoo AS
Methods in molecular biology (Clifton, N.J.) (2021) 2239: 77-100. . **ICC; tested species: human**
- Genetic dissection identifies Necdin as a driver gene in a mouse model of paternal 15q duplications.
Tamada K, Fukumoto K, Toya T, Nakai N, Awasthi JR, Tanaka S, Okabe S, Spitz F, Saitow F, Suzuki H, Takumi T, et al.
Nature communications (2021) 121: 4056. . **IHC; tested species: mouse**
- Visual Cortex Engagement in Retinitis Pigmentosa.
Pietra G, Bonifacio T, Talamonti D, Bonanno G, Sale A, Galli L, Baroncelli L
International journal of molecular sciences (2021) 2217: . . **WB; tested species: mouse**
- LAR-RPTPs Directly Interact with Neurexins to Coordinate Bidirectional Assembly of Molecular Machineries.
Han KA, Kim YJ, Yoon TH, Kim H, Bae S, Um JW, Choi SY, Ko J
The Journal of neuroscience : the official journal of the Society for Neuroscience (2020) : . . **ICC; tested species: mouse**
- Uncoupling endosomal CLC chloride/proton exchange causes severe neurodegeneration.
Weinert S, Gimber N, Deuschel D, Stuhlmann T, Puchkov D, Farsi Z, Ludwig CF, Novarino G, López-Cayuqueo KI, Planells-Cases R, Jentsch TJ, et al.
The EMBO journal (2020) : e103358. . **IHC; tested species: mouse**
- Synaptic organisation and behaviour-dependent activity of mGluR8a-innervated GABAergic trilinear cells projecting from the hippocampus to the subiculum.
Katona L, Hartwich K, Tomioka R, Somogyi J, Roberts JDB, Wagner K, Joshi A, Klausberger T, Rockland KS, Somogyi P
Brain structure & function (2020) 2252: 705-734. . **IHC; tested species: mouse, rat**
- Dysregulation of BRD4 Function Underlies the Functional Abnormalities of MeCP2 Mutant Neurons.
Xiang Y, Tanaka Y, Patterson B, Hwang SM, Hysolli E, Cakir B, Kim KY, Wang W, Kang YJ, Clement EM, Zhong M, et al.
Molecular cell (2020) 791: 84-98.e9. . **ICC; tested species: human**
- Receptor protein tyrosine phosphatase delta is not essential for synapse maintenance or transmission at hippocampal synapses.
Han KA, Lee HY, Lim D, Shin J, Yoon TH, Liu X, Um JW, Choi SY, Ko J
Molecular brain (2020) 131: 94. . **ICC; tested species: mouse**

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 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.