

VGLUT 2

Cat.No. 135 402; Polyclonal rabbit antibody, 200 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	200 µl antiserum, lyophilized. For reconstitution add 200 µl H ₂ O, then aliquot and store at -20°C until use. For detailed information, see back of the data sheet.
Applications	WB: 1 : 1000 up to 1 : 10000 (AP staining) (see remarks) IP: yes ICC: 1 : 500 IHC: 1 : 250 up to 1 : 1000 IHC-P/FFPE: 1 : 500
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.
Specificity	Specific for VGLUT 2
Matching control	135-4P
Remarks	This antibody is highly recommended as a marker for glutamatergic nerve terminals. WB: VGLUT 2 aggregates after boiling, making it necessary to run SDS-PAGE with non-boiled samples.

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://susy.com/product/135402> or scan the QR-code.



Background

The vesicular glutamate transporter 2 **VGLUT 2**, also referred to as **DNPI** and **SLC17A6**, has a more restricted expression than the related VGLUT 1. Like VGLUT 1, 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.

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 135 402

Expression of vesicular glutamate transporters VGLUT1 and VGLUT2 in the rat dental pulp and trigeminal ganglion following inflammation.

Yang ES, Jin MU, Hong JH, Kim YS, Choi SY, Kim TH, Cho YS, Bae YC
PloS one (2014) 9(10): e109723. . **WB, IHC**

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) 34(2): 108623. . **WB, ICC; tested species: human, mouse**

Vesicular glutamate transporter 1 (VGLUT1)- and VGLUT2-immunopositive axon terminals on the rat jaw-closing and jaw-opening motoneurons.

Park SK, Ko SJ, Paik SK, Rah JC, Lee KJ, Bae YC
Brain structure & function (2018) : . . **IHC, EM; tested species: rat**

Merlin modulates process outgrowth and synaptogenesis in the cerebellum.

Toledo A, Lang F, Doengi M, Morrison H, Stein V, Baader SL
Brain structure & function (2019) : . . **WB, IHC; tested species: mouse**

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) 67(6): 338-57. . **WB, IHC; tested species: mouse**

Transmitter inputs to different motoneuron subgroups in the oculomotor and trochlear nucleus in monkey.

Zeeh C, Mustari MJ, Hess BJ, Horn AK
Frontiers in neuroanatomy (2015) 9: 95. . **IHC-P**

NaV1.1 haploinsufficiency impairs glutamatergic and GABAergic neuron function in the thalamus.

Studtmann C, Ladislav M, Topolski MA, Safari M, Swanger SA
Neurobiology of disease (2022) 167: 105672. . **IHC; tested species: mouse**

When the front fails, the rear wins. Cerebellar correlates of prefrontal dysfunction in cocaine-induced memory in male rats.

Guarque-Chabrera J, Gil-Miravet I, Olucha-Bordonau F, Melchor-Eixea I, Miquel M
Progress in neuro-psychopharmacology & biological psychiatry (2022) 112: 110429. . **IHC; tested species: rat**

Heterogeneity of neurons reprogrammed from spinal cord astrocytes by the proneural factors Ascl1 and Neurogenin2.

Kempf J, Knelles K, Hersbach BA, Petrik D, Riedemann T, Bednarova V, Janjic A, Simon-Ebert T, Enard W, Smialowski P, Götz M, et al.

Cell reports (2021) 36(3): 109409. . **ICC; tested species: mouse**

Evidence that synaptic plasticity of glutamatergic inputs onto KNDy neurones during the ovine follicular phase is dependent on increasing levels of oestradiol.

Porter DT, Goodman RL, Hileman SM, Lehman MN
Journal of neuroendocrinology (2021) 33(3): e12945. . **IHC; tested species: sheep**

Localization, proteomics, and metabolite profiling reveal a putative vesicular transporter for UDP-glucose.

Qian C, Wu Z, Sun R, Yu H, Zeng J, Rao Y, Li Y
eLife (2021) 10: . . **WB; tested species: mouse**

Development of astrocyte morphology and function in mouse visual thalamus.

Somaiya RD, Huebschman NA, Chaunsali L, Sabbagh U, Carrillo GL, Tewari BP, Fox MA
The Journal of comparative neurology (2021) : . . **EM; tested species: mouse**

Molecular and structural basis of olfactory sensory neuron axon coalescence by Kirrel receptors.

Wang J, Vaddadi N, Pak JS, Park Y, Quilez S, Roman CA, Dumontier E, Thornton JW, Cloutier JF, Özkan E
Cell reports (2021) 37(5): 109940. . **IHC; 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.