SYSY Antibodies

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VGAT cytoplasmic domain

Cat.No. 131 002; Polyclonal rabbit antibody, 200 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	200 µl antiserum, lyophilized. For **reconstitution** add 200 µl H_2O, then aliquot and store at -20°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 : 5000 (AP staining) (see remarks) **IP**: yes **ICC**: 1 : 100 up to 1 : 1000 **IHC**: 1 : 500 up to 1 : 3000 **IHC-P**: 1 : 1000
Immunogen	Synthetic peptide corresponding to residues near the amino terminus of rat VGAT (UniProt Id: O35458)
Reactivity	Reacts with: human (Q9H598), rat (O35458), mouse (O35633), monkey. Other species not tested yet.
Specificity	K.O. validated
Matching control	131-0P
Remarks	**WB**: VGAT 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

Background

The **v**esicular **GA**BA **t**ransporter **VGAT** is responsible for uptake and storage of GABA and glycine by synaptic vesicles in the central nervous system. For this reason it is frequently referred to as the **v**esicular **i**nhibitory **a**mino**a**cid **t**ransporter **VIAAT**. It is different from the plasma membrane transporters in that it is driven by a proton electrochemical gradient across the vesicle membrane. So far, only one isoform is known. VGAT is currently the best marker for inhibitory nerve terminals.

Selected References for 131 002

Neuronal and glial differentiation during lizard (Gallotia galloti) visual system ontogeny.
Romero-Alemán MM, Monzón-Mayor M, Santos E, Lang DM, Yanes C
The Journal of comparative neurology (2012) 52010: 2163-84. . **WB, IHC**

Parkinson Sac Domain Mutation in Synaptojanin 1 Impairs Clathrin Uncoating at Synapses and Triggers Dystrophic Changes in Dopaminergic Axons.
Cao M, Wu Y, Ashrafi G, McCartney AJ, Wheeler H, Bushong EA, Boassa D, Ellisman MH, Ryan TA, De Camilli P
Neuron (2017) 934: 882-896.e5. . **WB, ICC; tested species: mouse**

Regulation of the Hippocampal Network by VGLUT3-Positive CCK- GABAergic Basket Cells.
Fasano C, Rocchetti J, Pietrajtis K, Zander JF, Manseau F, Sakae DY, Marcus-Sells M, Ramet L, Morel LJ, Carrel D, Dumas S, et al.
Frontiers in cellular neuroscience (2017) 11: 140. . **IP, WB; tested species: mouse**

Stimulation of TM3 Leydig cell proliferation via GABA(A) receptors: a new role for testicular GABA.
Geigerseder C, Doepner RF, Thalhammer A, Krieger A, Mayerhofer A
Reproductive biology and endocrinology : RB&E (2004) 2: 13. . **ICC, IHC-P; tested species: mouse,rat**

Astragaloside IV ameliorates autism-like behaviors in BTBR mice by modulating Camk2n2-dependent OXPHOS and neurotransmission in the mPFC.
Chen M, Shi J, Liu T, Liu J, Liu Y, Li J, Luo Y, Luo J, Li X, Gong H, Fan X, et al.
Journal of advanced research (2025) : . . **WB, IHC; tested species: mouse**

Impaired Presynaptic Function Contributes Significantly to the Pathology of Glycine Receptor Autoantibodies.
Wiessler AL, Zheng F, Werner C, Habib M, Tuzun E, Alzheimer C, Sommer C, Villmann C
Neurology(R) neuroimmunology & neuroinflammation (2025) 122: e200364. . **WB, ICC; tested species: mouse**

Cranial irradiation impairs intrinsic excitability and synaptic plasticity of hippocampal CA1 pyramidal neurons with implications for cognitive function.
Wu MY, Zou WJ, Yu P, Yang Y, Li SJ, Liu Q, Xie J, Chen SQ, Lin WJ, Tang Y
Neural regeneration research (2022) 1710: 2253-2259. . **WB, IHC; tested species: mouse**

Reelin Affects Signaling Pathways of a Group of Inhibitory Neurons and the Development of Inhibitory Synapses in Primary Neurons.
Lee SE, Lee GH
International journal of molecular sciences (2021) 2214: . . **WB, ICC; tested species: mouse**

Molecular Dissection of Neuroligin 2 and Slitrk3 Reveals an Essential Framework for GABAergic Synapse Development.
Li J, Han W, Pelkey KA, Duan J, Mao X, Wang YX, Craig MT, Dong L, Petralia RS, McBain CJ, Lu W, et al.
Neuron (2017) 964: 808-826.e8. . **ICC, IHC; tested species: mouse**

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. . **WB, IHC**

Partial microglial depletion through inhibition of colony-stimulating factor 1 receptor improves synaptic plasticity and cognitive performance in aged mice.
Strackeljan L, Baidoe-Ansah D, Mirzapourdelavar H, Jia S, Kaushik R, Cangalaya C, Dityatev A
Experimental neurology (2025) 387: 115186. . **IHC; tested species: mouse**

Effects of psoralidin on the expression of glutamate decarboxylases and inhibitory synapse development.
Lee SE, Lee GH
Journal of Asian natural products research (2024) : 1-9. . **WB; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/131002 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.