SYSY Antibodies

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VGAT (SLC32A1) 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 (FFPE)**: 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. Predicted to cross-react with cat due to high sequence homology.
Specificity	K.O. validated
Matching control	131-0P
Remarks	**WB**: To avoid protein aggregation, do not heat samples for SDS-PAGE.

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.

For more information on protein expression pattern, please refer to the overview image in our SYSY Antibodies ATLAS.

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**

Presynaptic accumulation of APP-CTFβ may contribute to synaptic dysfunction in Alzheimer's disease.
Kapadia A, Schuhmann F, Daskin E, Walter J, Lindahl I, Rahmani N, Morrema THJ, Rozemuller AJM, Boon BDC, Pezeshkian W, Hafner AS, et al.
The EMBO journal (2026) : . . **WB, ICC; tested species: mouse,rat**

A critical role of Neuroligin 2 C-terminus in OCD and social behavior.
Pandey S, Ostergren S, Li J, Peng S, Wang G, Tian Q, Dong L, Lu W
The Journal of neuroscience : the official journal of the Society for Neuroscience (2025) 4519: . . **ICC, WB; 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**

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**

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**

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 SYSY antibodies and control proteins/peptides are shipped lyophilized (vacuum freeze-dried). In this form, they remain stable 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. **Do not freeze lyophilized antibodies**. Temperatures below 0°C may impair performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long-term storage of lyophilized fluorophore-conjugates may cause aggregation.
- **Control peptides** should be stored at -20°C before reconstitution.

Long Term Storage after Reconstitution (General Considerations)

- **Do not use frost-free ("no-frost") freezers.** These units periodically warm to remove ice buildup, causing freeze–thaw cycles that can damage antibodies.
- Store vials in areas with minimal temperature fluctuation - preferably toward the back of the freezer, not on the door.
- Aliquot reconstituted antibodies and store at –20°C to –80°C.
- Avoid very small aliquots (<20 µL), as evaporation and adsorption to tube surfaces can reduce antibody concentration and activity.
- Use the smallest practical storage vial to minimize surface area.
- Adding glycerol to a final concentration of 50% prevents freezing at -20°C, allowing storage in liquid form and effectively avoiding freeze–thaw cycles.

Product Specific Hints for Storage

Control proteins / peptides

- Store at -20°C to -80°C

Monoclonal Antibodies

- **Ascites and hybridoma supernatant:** Store at -20°C to -80°C
  Prolonged storage at 4°C is not recommended, as proteases present in ascites may degrade antibodies.
- **Purified IgG:** Store at -20°C to -80°C
  Adding a carrier protein (e.g., BSA) enhances long-term stability.
  Many SYSY antibodies already contain carrier proteins - refer to the respective datasheet for details.

Polyclonal Antibodies

- **Crude antisera:** Can be stored at 4°C with antimicrobials added, but -20°C to -80°C is preferred
- **Affinity-purified antibodies:** Less stable than antisera; store at -20°C to -80°C
  Adding a carrier protein such as BSA improves long-term stability.
  Most SYSY antibodies already contain carrier proteins - refer to the respective datasheet for details.

Fluorescence-labeled Antibodies

- Store as a liquid with 1:1 (v/v) glycerol at -20°C, and protect from light exposure

Avoid repeated freeze-thaw cycles for all antibodies!

FAQ - How should I reconstitute my antibody?

Reconstitution

- All purified SYSY antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the volume of deionized water specified in the corresponding datasheet. If a larger final volume is desired, first add the recommended amount of water, then adjust with PBS and, if needed, add a stabilizing carrier protein (e.g., BSA) to a final concentration of 2%. Some SYSY antibodies already contain albumin; please take this into account before adding additional carrier protein.

For complete reconstitution, carefully remove the vial cap. After adding water, briefly vortex the solution. To collect the liquid at the bottom of the vial, place the vial inside a 50 ml centrifuge tube padded with paper and centrifuge briefly.

- If desired, small amounts of azide or thimerosal may be added to prevent microbial growth. This is particularly recommended when storing an aliquot at 4°C.
- After reconstitution of fluorescence-labeled antibodies, add glycerol 1:1 (v/v) to achieve a final concentration of 50%. This prevents freezing at –20°C and keeps the antibody in liquid form, effectively avoiding freeze–thaw cycles.
- Glycerol may also be added to unlabeled primary antibodies as a general measure to prevent freeze–thaw damage.
- For further guidance, please refer to our **storage tips** and recommendations for reconstituted antibodies, control peptides, and control proteins.