SYSY Antibodies

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VGAT (SLC32A1) cytoplasmic domain

Cat.No. 131 006; Polyclonal chicken antibody, 50 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Albumin and azide were added for stabilization. For **reconstitution** add 50 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**: not recommended (see remarks) **IP**: not tested yet **ICC**: 1 : 500 **IHC**: 1 : 500 **IHC-P (FFPE)**: 1 : 500 **IHC-Fr**: yes (see remarks)
Immunogen	Recombinant protein corresponding to residues near the amino terminus of rat VGAT (UniProt Id: O35458)
Reactivity	Reacts with: rat (O35458), mouse (O35633), human (Q9H598). Other species not tested yet.
Matching control	131-0GP
Remarks	**WB**: To avoid protein aggregation, do not heat samples for SDS-PAGE. **IHC-Fr**: 4% formaldehyde/PFA fixation is recommended.

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 131 006

Vitamin B6 Deficiency Induces Autism-Like Behaviors in Rats by Regulating mTOR-Mediated Autophagy in the Hippocampus.
Chen L, Li J, Liu X, Zhao Z, Jin Y, Fu Y, Zhou A, Wang C, Zhou Y
Behavioural neurology (2023) 2023: 6991826. . **IHC_FR; tested species: rat**

Experimental Epileptogenesis in a Cell Culture Model of Primary Neurons from Rat Brain: A Temporal Multi-Scale Study.
Jablonski J, Hoffmann L, Blümcke I, Fejtová A, Uebe S, Ekici AB, Gnatkovsky V, Kobow K
Cells (2021) 1011: . . **ICC; tested species: rat**

Enhanced GABAergic Immunoreactivity in Hippocampal Neurons and Astroglia of Multiple Sclerosis Patients.
Kiljan S, Prins M, Baselmans BM, Bol JGJM, Schenk GJ, van Dam AM
Journal of neuropathology and experimental neurology (2019) 786: 480-491. . **IHC-P; tested species: human**

The Presynaptic Protein Mover Is Differentially Expressed Across Brain Areas and Synapse Types.
Wallrafen R, Dresbach T
Frontiers in neuroanatomy (2018) 12: 58. . **IHC; tested species: mouse**

Ganglioside GT1b prevents selective spinal synapse removal following peripheral nerve injury.
Lee J, Noh K, Lee S, Kim KH, Chung S, Lim H, Hwang M, Lee JH, Chung WS, Chang S, Lee SJ, et al.
EMBO reports (2025) : . . **IHC; tested species: mouse**

Neurons derived from NeuroD1-expressing astrocytes transition through transit-amplifying intermediates but lack functional maturity.
Chen F, Liu X, Zhong X, Chen X, Nicholson E, Liu K, Chen H, Lin Y, Shu Y, Zhou W, Schuurmans CJ, et al.
Science advances (2025) 1130: eadw9296. . **IHC; tested species: mouse**

Increased number of excitatory synapsis and decreased number of inhibitory synapsis in the prefrontal cortex in autism.
Vakilzadeh G, Maseko BC, Bartely TD, McLennan YA, Martínez-Cerdeño V
Cerebral cortex (New York, N.Y. : 1991) (2024) 3413: 121-128. . **IHC; tested species: human**

Shank2/3 double knockout-based screening of cortical subregions links the retrosplenial area to the loss of social memory in autism spectrum disorders.
Garrido D, Beretta S, Grabrucker S, Bauer HF, Bayer D, Sala C, Verpelli C, Roselli F, Bockmann J, Proepper C, Catanese A, et al.
Molecular psychiatry (2022) : . . **IHC; tested species: mouse**

Social Play Behavior Is Critical for the Development of Prefrontal Inhibitory Synapses and Cognitive Flexibility in Rats.
Bijlsma A, Omrani A, Spoelder M, Verharen JPH, Bauer L, Cornelis C, de Zwart B, van Dorland R, Vanderschuren LJMJ, Wierenga CJ
The Journal of neuroscience : the official journal of the Society for Neuroscience (2022) 4246: 8716-8728. . **IHC; tested species: rat**

Paradoxical network excitation by glutamate release from VGluT3+ GABAergic interneurons.
Pelkey KA, Calvigioni D, Fang C, Vargish G, Ekins T, Auville K, Wester JC, Lai M, Mackenzie-Gray Scott C, Yuan X, Hunt S, et al.
eLife (2020) 9: . . **IHC; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/131006 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.