SYSY Antibodies

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VGAT (SLC32A1) cytoplasmic domain

Cat.No. 131 005; Polyclonal Guinea pig 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**: 1 : 1000 up to 1 : 5000 (AP staining) (see remarks) **IP**: not tested yet **ICC**: 1 : 500 up to 1 : 1000 **IHC**: 1 : 500 up to 1 : 1000 (see remarks) **IHC-P (FFPE)**: 1 : 500
Immunogen	Recombinant protein corresponding to residues near the amino terminus of rat VGAT (UniProt Id: O35458)
Reactivity	Reacts with: rat (O35458), mouse (O35633). Other species not tested yet.
Matching control	131-0GP
Remarks	**WB**: To avoid protein aggregation, do not heat samples for SDS-PAGE. **IHC**: Antigen retrieval with citrate buffer pH 6 can be applied to improve the signal-to-noise ratio.

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 131 005

Identification and characterization of GABA(A) receptor autoantibodies in autoimmune encephalitis.
Ohkawa T, Satake S, Yokoi N, Miyazaki Y, Ohshita T, Sobue G, Takashima H, Watanabe O, Fukata Y, Fukata M
The Journal of neuroscience : the official journal of the Society for Neuroscience (2014) 3424: 8151-63. . **ICC; tested species: rat**

Corelease of dopamine and GABA by a retinal dopaminergic neuron.
Hirasawa H, Betensky RA, Raviola E
The Journal of neuroscience : the official journal of the Society for Neuroscience (2012) 3238: 13281-91. . **IHC; tested species: mouse**

Nanoscale Activity Mapping of Chloride-Permeable Pentameric Receptors.
Vella Y, Procès A, Van Bocxlaer A, Trippaers C, Lara CO, Uslu Ö, Piccart E, Harvey RJ, Yévenes GE, Moraga-Cid G, Saudou F, et al.
ACS sensors (2026) 112: 1020-1032. . **ICC; tested species: mouse**

Autism risk gene Cul3 alters neuronal morphology via caspase-3 activity in mouse hippocampal neurons.
Xia QQ, Singh A, Wang J, Xuan ZX, Singer JD, Powell CM
Frontiers in cellular neuroscience (2024) 18: 1320784. . **ICC; tested species: mouse**

GABAergic-like dopamine synapses in the brain.
Kim HJ, Hwang B, Reva M, Lee J, Lee BE, Lee Y, Cho EJ, Jeong M, Lee SE, Myung K, Baik JH, et al.
Cell reports (2023) 4210: 113239. . **IHC; tested species: mouse**

Engram cell connectivity as a mechanism for information encoding and memory function.
Ortega-de San Luis C, Pezzoli M, Urrieta E, Ryan TJ
Current biology : CB (2023) 3324: 5368-5380.e5. . **IHC; tested species: mouse**

Deleting Mecp2 from the cerebellum rather than its neuronal subtypes causes a delay in motor learning in mice.
Achilly NP, He LJ, Kim OA, Ohmae S, Wojaczynski GJ, Lin T, Sillitoe RV, Medina JF, Zoghbi HY
eLife (2021) 10: . . **IHC; tested species: mouse**

Direct reprogramming of oligodendrocyte precursor cells into GABAergic inhibitory neurons by a single homeodomain transcription factor Dlx2.
Boshans LL, Soh H, Wood WM, Nolan TM, Mandoiu II, Yanagawa Y, Tzingounis AV, Nishiyama A
Scientific reports (2021) 111: 3552. . **ICC; tested species: mouse**

Molecular self-avoidance in synaptic neurexin complexes.
Wang CY, Trotter JH, Liakath-Ali K, Lee SJ, Liu X, Südhof TC
Science advances (2021) 751: eabk1924. . **IHC; tested species: mouse**

Neuroligin-4 Regulates Excitatory Synaptic Transmission in Human Neurons.
Marro SG, Chanda S, Yang N, Janas JA, Valperga G, Trotter J, Zhou B, Merrill S, Yousif I, Shelby H, Vogel H, et al.
Neuron (2019) 1034: 617-626.e6. . **ICC; tested species: human**

Selected General References

The vesicular GABA transporter, VGAT, localizes to synaptic vesicles in sets of glycinergic as well as GABAergic neurons.
Chaudhry FA et al. J. Neurosci. (1998) PubMed:9822734

Access the online factsheet including applicable protocols at https://sysy.com/product/131005 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.