SYSY Antibodies

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VGAT (SLC32A1) cytoplasmic domain

Cat.No. 131 008; Recombinant rabbit antibody, 50 µg recombinant IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg purified recombinant IgG, lyophilized. Albumin and azide were added for stabilization. For **reconstitution** add 50 µl H_2O to get a 1mg/ml solution in TBS. 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 : 2000 (AP staining) (see remarks) **ICC**: 1 : 500 up to 1 : 1000 **IHC**: 1 : 500 up to 1 : 1000 **IHC-P (FFPE)**: 1 : 500 up to 1 : 1000 (see remarks) **IHC-Fr**: 1 : 500 (see remarks)
Clone	Rb117G4
Subtype	IgG1 (κ light chain)
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), Guinea pig, ape. 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	This antibody is a chimeric antibody based on the well known monoclonal mouse antibody clone 117G4. The constant regions of the heavy and light chains have been replaced with rabbit specific sequences. Therefore, the antibody can be used with standard anti-rabbit secondary reagents. The antibody has been expressed in mammalian cells. **WB**: To avoid protein aggregation, do not heat samples for SDS-PAGE. **IHC-P (FFPE)**: Antigen retrieval with Tris-EDTA buffer pH 9 is recommended for fluorescent detection. **IHC-Fr**: Acetone 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 131 008

Low-frequency RTMS attenuates social impairment in the VPA-induced mouse model.
Wang X, Li Y, Li R, Yuan L, Hua Y, Cai Y, Liu X
Behavioural brain research (2024) 472: 115156. . **WB, IHC; tested species: mouse**

Contribution of the astrocytic tau pathology to synapse loss in progressive supranuclear palsy and corticobasal degeneration.
Briel N, Pratsch K, Roeber S, Arzberger T, Herms J
Brain pathology (Zurich, Switzerland) (2021) 314: e12914. . **IHC-P; tested species: human**

Role of Aberrant Spontaneous Neurotransmission in SNAP25-Associated Encephalopathies.
Alten B, Zhou Q, Shin OH, Esquivies L, Lin PY, White KI, Sun R, Chung WK, Monteggia LM, Brunger AT, Kavalali ET, et al.
Neuron (2020) : . . **ICC; tested species: mouse**

Corticothalamic assembloids recapitulate human fetal brain morphologies and enhance neuronal complexity.
Antunes ASLM, Athié MCP, Caznok Silveira AC, Renner J, Dias EV, Santos JVRD, Hrvoj-Mihic B, Canateli C, Meidanis J, Muotri AR, Vieira AS, et al.
Neuroscience (2026) 615: 43-54. . **IHC; tested species: human**

Cryo-electron tomography of functionally validated synapses in human induced neurons.
Houcek AJ, Sun R, Rothfuss SJ, Chalkley OR, Kavalali ET, Zhou Q
Structure (London, England : 1993) (2026) : . . **ICC; tested species: human,mouse**

Targeting C1q prevents microglia-mediated synaptic removal in neuropathic pain.
Yousefpour N, Tansley SN, Locke S, Sharif B, Parisien M, Bourojeni FB, Deamond H, Mathur V, Arana NR, Austin JS, Bourassa V, et al.
Nature communications (2025) 161: 4590. . **IHC; tested species: mouse**

Unraveling the potential of hypothalamic deep brain stimulation for obesity: Impacts on memory, neuroplasticity and brain metabolism in the Zucker rat.
Casquero-Veiga M, Llorca-Torralba M, Bueno-Fernandez C, Romero-Miguel D, Lamanna-Rama N, Winter C, Berrocoso E, Nacher J, Desco M, Soto-Montenegro ML
Translational psychiatry (2025) 151: 273. . **IHC; tested species: rat**

Small cell lung cancer induces synaptic scaling to alter neuronal excitability.
Houcek AJ, Uzay B, Ildefonso GV, Omokehinde T, Monteggia LM, Quaranta V, Linkous A, Kavalali ET
Communications biology (2025) 81: 1559. . **ICC; tested species: human**

Synaptogenic gene therapy with FGF22 improves circuit plasticity and functional recovery following spinal cord injury.
Aljović A, Jacobi A, Marcantoni M, Kagerer F, Loy K, Kendirli A, Bräutigam J, Fabbio L, Van Steenbergen V, Pleśniar K, Kerschensteiner M, et al.
EMBO molecular medicine (2023) : e16111. . **IHC; tested species: mouse**

Activity-dependent tau cleavage by caspase-3 promotes neuronal dysfunction and synaptotoxicity.
Opland CK, Bryan MR, Harris B, McGillion-Moore J, Tian X, Chen Y, Itano MS, Diering GH, Meeker RB, Cohen TJ
iScience (2023) 266: 106905. . **ICC; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/131008 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.