SYSY Antibodies

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VGAT (SLC32A1) cytoplasmic domain

Cat.No. 131 011; Monoclonal mouse antibody, 100 µg purified IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µg purified IgG, lyophilized. Albumin and azide were added for stabilization. For **reconstitution** add 100 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 : 500 up to 1 : 2000 (AP staining) (see remarks) **IP**: yes **ICC**: 1 : 200 up to 1 : 1000 **IHC**: 1 : 100 up to 1 : 1000 **IHC-P (FFPE)**: 1 : 100 up to 1 : 500 **ExM**: external data (see remarks) **DNA-PAINT**: external data (see remarks) **Clarity**: external data (see remarks) **EM**: external data (see remarks) **FACS**: yes
Clone	117G4
Subtype	IgG3 (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, monkey. Other species not tested yet.
Specificity	K.O. validated PubMed: 29431653
Matching control	131-0P
Remarks	**WB**: To avoid protein aggregation, do not heat samples for SDS-PAGE. **ExM**: This antibody has been successfully applied and published for this method by customers (see application-specific references). **DNA-PAINT**: This antibody has been successfully applied and published for this method by customers (see application-specific references). **Clarity**: This antibody has been successfully applied and published for this method by customers (see application-specific references). **EM**: This antibody has been successfully applied and published for this method by customers (see application-specific references).

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 131 011

Expression and function of SNAP-25 as a universal SNARE component in GABAergic neurons.
Tafoya LC, Mameli M, Miyashita T, Guzowski JF, Valenzuela CF, Wilson MC
The Journal of neuroscience : the official journal of the Society for Neuroscience (2006) 2630: 7826-38. . **WB, ICC, IHC**

EphA4 is localized in clathrin-coated and synaptic vesicles in adult mouse brain.
Bouvier D, Tremblay ME, Riad M, Corera AT, Gingras D, Horn KE, Fotouhi M, Girard M, Murai KK, Kennedy TE, McPherson PS, et al.
Journal of neurochemistry (2010) 1131: 153-65. . **ICC, IP, WB**

Reciprocal control of excitatory synapse numbers by Wnt and Wnt inhibitor PRR7 secreted on exosomes.
Lee SH, Shin SM, Zhong P, Kim HT, Kim DI, Kim JM, Do Heo W, Kim DW, Yeo CY, Kim CH, Liu QS, et al.
Nature communications (2018) 91: 3434. . **WB, ICC, IHC; tested species: rat**

Proliferation of external globus pallidus-subthalamic nucleus synapses following degeneration of midbrain dopamine neurons.
Fan KY, Baufreton J, Surmeier DJ, Chan CS, Bevan MD
The Journal of neuroscience : the official journal of the Society for Neuroscience (2012) 3240: 13718-28. . **IHC, EM**

Nonapoptotic caspase-3 guides C1q-dependent synaptic phagocytosis by microglia.
Andoh M, Shinoda N, Taira Y, Araki T, Kasahara Y, Takeuchi H, Miura M, Ikegaya Y, Koyama R
Nature communications (2025) 161: 918. . **ICC, IHC; tested species: mouse**

Neonatal sevoflurane anesthesia induces persistent cognitive deficits in mice through CypD-dependent mitochondrial impairment in parvalbumin interneurons.
Zhang X, Wang L, Zou X, Xu C, Qu W, Peng K, Hu X, Zhang L
Chemico-biological interactions (2025) 420: 111700. . **WB, IHC; tested species: mouse**

Decreased excitatory and increased inhibitory transmission in the hippocampal CA1 drive neuroinflammation-induced cognitive impairments in mice.
Wu XM, Shi CN, Liu K, Hu XY, He QL, Yao H, Fan D, Ma DQ, Yang JJ, Shen JC, Ji MH, et al.
Brain, behavior, and immunity (2025) 128: 416-428. . **WB, IHC; tested species: mouse**

The impact of exogenous Oxytocin on visual cortex plasticity across different stages of visual development.
Sun Y, Wang X, Chen Y, Luan Z, Hao R
Scientific reports (2025) 151: 12137. . **WB, IHC; tested species: mouse**

The TMEM132B-GABAA receptor complex controls alcohol actions in the brain.
Wang G, Peng S, Reyes Mendez M, Keramidas A, Castellano D, Wu K, Han W, Tian Q, Dong L, Li Y, Lu W, et al.
Cell (2024) 18723: 6649-6668.e35. . **WB, ICC; tested species: mouse**

Cannabidiol modulates excitatory-inhibitory ratio to counter hippocampal hyperactivity.
Rosenberg EC, Chamberland S, Bazelot M, Nebet ER, Wang X, McKenzie S, Jain S, Greenhill S, Wilson M, Marley N, Salah A, et al.
Neuron (2023) : . . **ICC, IHC; tested species: mouse,rat**

Increased body weight in mice with fragile X messenger ribonucleoprotein 1 (Fmr1) gene mutation is associated with hypothalamic dysfunction.
Ruggiero-Ruff RE, Villa PA, Hijleh SA, Avalos B, DiPatrizio NV, Haga-Yamanaka S, Coss D
Scientific reports (2023) 131: 12666. . **WB, IHC; tested species: mouse**

LPS induces microglial activation and GABAergic synaptic deficits in the hippocampus accompanied by prolonged cognitive impairment.
Jung H, Lee D, You H, Lee M, Kim H, Cheong E, Um JW
Scientific reports (2023) 131: 6547. . **WB, IHC; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/131011 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.