SYSY Antibodies

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# VGAT 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.<br>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.<br>Antibodies should be stored at +4°C when still lyophilized. Do not freeze!<br>For detailed information, see back of the data sheet. |
| Applications | **WB**: 1 : 500 up to 1 : 2000 (AP staining)<br>**IP**: yes<br>**ICC**: 1 : 200 up to 1 : 1000<br>**IHC**: 1 : 100 up to 1 : 1000<br>**IHC-P**: 1 : 100 up to 1 : 500<br>**ExM**: yes (see remarks)<br>**DNA-PAINT**: yes<br>**Clarity**: 1 : 50 (see remarks)<br>**EM**: yes<br>**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.<br>**ExM**: This antibody has been successfully used for the epitope-preserving magnified analysis of the proteome (eMAP) expansion microscopy method (Park et al. 2021. PMID: 34767453).<br>**Clarity**: This antibody has been successfully used for CLARITY application in human brain (Woelfle et al., 2023; PMID: 37221592). |

**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**

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**

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**

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**

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**

Inhibitory synapse dysfunction and epileptic susceptibility associated with KIF2A deletion in cortical interneurons.
Ruiz-Reig N, García-Sánchez D, Schakman O, Gailly P, Tissir F
Frontiers in molecular neuroscience (2022) 15: 1110986. . **WB, IHC; tested species: mouse**

ErbB4 promotes inhibitory synapse formation by cell adhesion, independent of its kinase activity.
Luo B, Liu Z, Lin D, Chen W, Ren D, Yu Z, Xiong M, Zhao C, Fei E, Li B
Translational psychiatry (2021) 111: 361. . **WB, ICC; 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 our antibodies and control proteins / peptides are shipped lyophilized (vacuum freeze-dried) and are stable in this form 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. **They must not be stored in the freezer when still lyophilized!** Temperatures below zero may cause loss of performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long term storage (several months) may lead to aggregation.
- **Control peptides** should be kept at -20°C before reconstitution.

## Long Term Storage after Reconstitution (General Considerations)

- The storage freezer must not be of the frost-free variety ("no-frost freezer"). This cycle between freezing and thawing (to reduce frost-build-up), which is exactly what should be avoided. For the same reason, antibody vials should be placed in an area of the freezer that has minimal temperature fluctuations, for instance towards the back rather than on a door shelf.
- Aliquot the antibody and store frozen (-20°C to -80°C). Avoid very small aliquots (below 20 µl) and use the smallest storage vial or tube possible. The smaller the aliquot, the more the stock concentration is affected by evaporation and adsorption of the antibody to the surface of the storage vial or tube. Adsorption of the antibody to the surface leads to a substantial loss of activity.
- The addition of glycerol to a final concentration of 50% lowers the freezing point of your stock and keeps your antibody at -20°C in liquid state. This efficiently avoids freeze and thaw cycles.

## Product Specific Hints for Storage

### Control proteins / peptides

- Store at -20°C to -80°C.

### Monoclonal Antibodies

- **Ascites** and **hybridoma supernatant** should be stored at -20°C up to -80°C. **Prolonged storage at 4°C is not recommended!** Unlike serum, ascites may contain proteases that will degrade the antibodies.
- **Purified IgG** should be stored at -20°C up to -80°C. Adding a carrier protein like BSA will increase long term stability. Many of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

### Polyclonal Antibodies

- **Crude antisera**: With anti-microbials added, they may be stored at 4°C. However, frozen storage (-20°C up to -80°C) is preferable.
- **Affinity purified antibodies**: Less robust than antisera. Storage at -20°C up to -80°C is recommended. Adding a carrier protein like BSA will increase long term stability. Most of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

### Fluorescence-labeled Antibodies

- Store as a liquid with 1 : 1 (v/v) glycerol at -20°C. Protect these antibodies from light exposure.

# Avoid repeated freeze-thaw cycles for all antibodies!

# FAQ - How should I reconstitute my antibody?

## Reconstitution

- All our purified antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the amount of deionized water given in the respective datasheet. If higher volumes are preferred, add water as mentioned above and then the desired amount of PBS and a stabilizing carrier protein (e.g. BSA) to a final concentration of 2%. Some of our antibodies already contain albumin. Take this into account when adding more carrier protein.
  For complete reconstitution, carefully remove the lid. After adding water, briefly vortex the solution. You can spin down the liquid by placing the vial into a 50 ml centrifugation tube filled with paper.
- If desired, add small amounts of azide or thimerosal to prevent microbial growth. This is especially recommended if you want to keep an aliquot a 4°C.
- After reconstitution of fluorescence-labeled antibodies, add 1 : 1 (v/v) glycerol to a final concentration of 50%. This lowers the freezing point of your stock and keeps your antibody in liquid state at -20°C.
- Glycerol may also be added to unlabeled primary antibodies. It is a suitable way to avoid freeze-thaw cycles.
- Please refer to our **tips and hints for subsequent storage** of reconstituted antibodies and control peptides and proteins.