

## VGAT 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 <b>reconstitution</b> add 50 µl H <sub>2</sub> O 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	<b>WB:</b> 1 : 1000 up to 1 : 2000 AP staining (see remarks) <b>ICC:</b> 1 : 500 up to 1 : 1000 <b>IHC:</b> 1 : 500 up to 1 : 1000 <b>IHC_P:</b> 1 : 500 up to 1 : 1000 (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). Other species not tested yet.
Specificity	K.O.
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. <b>WB:</b> VGAT aggregates after boiling, making it necessary to run SDS-PAGE with non-boiled samples. <b>IHC_P:</b> Antigen retrieval at pH 9.0 (10 mM Tris pH 9.0, 1mM EDTA, 0.05 % Tween20) is recommended.

**TO BE USED IN VITRO / FOR RESEARCH ONLY**  
**NOT TOXIC, NOT HAZARDOUS, NOT INFECTIOUS, NOT CONTAGIOUS**

## Background

The vesicular **GABA** transporter **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 vesicular inhibitory amino acid transporter **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 131 008

- Exploratory study of the long-term footprint of deep brain stimulation on brain metabolism and neuroplasticity in an animal model of obesity.  
Casquero-Veiga M, Bueno-Fernandez C, Romero-Miguel D, Lamanna-Rama N, Nacher J, Desco M, Soto-Montenegro ML  
Scientific reports (2021) 11: 5580. . **IHC; tested species: rat**
- 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**
- 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 Steenberghe V, Plešniar K, Kerscheneiner 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**
- Super-resolution imaging of synaptic scaffold proteins in rat hippocampal neurons.  
Guzikowski NJ, Kavalali ET  
STAR protocols (2023) 41: 102080. . **ICC; tested species: rat**
- Long-Term Cultures of Spinal Cord Interneurons.  
Vargova I, Kriska J, Kwok JCF, Fawcett JW, Jendelova P  
Frontiers in cellular neuroscience (2022) 16: 827628. . **ICC; tested species: mouse**
- Nano-organization of spontaneous GABAergic transmission directs its autonomous function in neuronal signaling.  
Guzikowski NJ, Kavalali ET  
Cell reports (2022) 406: 111172. . **ICC; tested species: rat**
- TDP-43 proteinopathy occurs independently of autophagic substrate accumulation and underlies nuclear defects in Niemann-Pick C disease.  
Liu EA, Mori E, Hamasaki F, Lieberman AP  
Neuropathology and applied neurobiology (2021) 477: 1019-1032. . **IHC; tested species: mouse**

## Selected General References

- The vesicular GABA transporter, VGAT, localizes to synaptic vesicles in sets of glycinergic as well as GABAergic neurons.  
Chaudhry FA, Reimer RJ, Bellocchio EE, Danbolt NC, Osen KK, Edwards RH, Storm-Mathisen J  
The Journal of neuroscience : the official journal of the Society for Neuroscience (1998) 1823: 9733-50. .
- Identification and characterization of the vesicular GABA transporter.  
McIntire SL, Reimer RJ, Schuske K, Edwards RH, Jorgensen EM  
Nature (1997) 3896653: 870-6. .

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 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.