

## VACHT

Cat.No. 139 103; Polyclonal rabbit 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 <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 : 100 up to 1 : 1000 (AP staining) (see remarks) <b>IP:</b> yes <b>ICC:</b> 1 : 500 up to 1 : 10000 <b>IHC:</b> 1 : 100 up to 1 : 1000 <b>IHC-P:</b> 1 : 500 <b>iDISCO:</b> 1 : 500
Immunogen	Recombinant protein corresponding to residues near the carboxy terminus of rat VACHT (UniProt Id: Q62666)
Reactivity	Reacts with: human (Q16572), rat (Q62666), mouse (O35304), pig, zebrafish. Other species not tested yet.
Specificity	K.O. validated PubMed: <a href="https://pubmed.ncbi.nlm.nih.gov/24027290/">24027290</a>
Matching control	139-1P
Remarks	This antibody detects the glycosylated and unglycosylated protein and is an excellent marker for cholinergic axons. <b>WB:</b> VACHT aggregates after boiling, making it necessary to run SDS-PAGE with non-boiled samples.

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

### Background

The vesicular acetylcholine transporter **VACHT** is an integral membrane protein with 12 putative trans-membrane domains. VACHT and choline acetyltransferase (ChAT) are encoded by genes organized in a single gene locus, and coregulation of the two genes has been reported several times. VACHT translocates acetylcholine from the cytoplasm into synaptic vesicles where it stays until release. After release from the presynaptic nerve terminal acetylcholine is hydrolyzed by acetylcholine esterase. During Alzheimer's disease acetylcholine is one of the first neurotransmitters to be reduced.

### Selected References for 139 103

Novel strains of mice deficient for the vesicular acetylcholine transporter: insights on transcriptional regulation and control of locomotor behavior.

Martins-Silva C, De Jaeger X, Guzman MS, Lima RD, Santos MS, Kushmerick C, Gomez MV, Caron MG, Prado MA, Prado VF PLoS one (2011) 63: e17611. . **WB, IHC; tested species: mouse**

Characterizing and targeting glioblastoma neuron-tumor networks with retrograde tracing.

Tetzlaff SK, Reyhan E, Layer N, Bengtson CP, Heuer A, Schroers J, Faymonville AJ, Langeroudi AP, Drewa N, Keifert E, Wagner J, et al.

Cell (2024) : . . **ICC, IHC-P; tested species: human,mouse**

Increased cholinergic activity under conditions of low estrogen leads to adverse cardiac remodeling.

Teixeira VP, Miranda K, Scalzo S, Rocha-Resende C, Silva MM, Tezini GCSV, Melo MB, Souza-Neto FP, Silva KSC, Jesus ICG, Santos AK, et al.

American journal of physiology. Cell physiology (2020) : . . **WB, ICC; tested species: mouse**

Cholinergic signaling via muscarinic M1 receptor confers resistance to docetaxel in prostate cancer.

Wang J, Wei J, Pu T, Zeng A, Karthikeyan V, Bechtold B, Vo K, Chen J, Lin TP, Chang AP, Corey E, et al. Cell reports. Medicine (2024) : 101388. . **WB, IHC; tested species: human,mouse**

Enriched environment attenuates hippocampal theta and gamma rhythms dysfunction in chronic cerebral hypoperfusion via improving imbalanced neural afferent levels.

Zheng J, Peng S, Cui L, Liu X, Li T, Zhao Z, Li Y, Hu Y, Zhang M, Xu L, Zhang J, et al. Frontiers in cellular neuroscience (2023) 17: 985246. . **WB, IHC; tested species: rat**

Generation of self-organized autonomic ganglion organoids from fibroblasts.

Liu S, Xiang K, Yuan F, Xiang M

iScience (2023) 263: 106241. . **ICC, IHC; tested species: mouse**

Continuous cholinergic-dopaminergic updating in the nucleus accumbens underlies approaches to reward-predicting cues.

Skirzewski M, Princz-Lebel O, German-Castelan L, Crooks AM, Kim GK, Tarnow SH, Reichelt A, Memar S, Palmer D, Li Y, Jane Rylett R, et al.

Nature communications (2022) 131: 7924. . **WB, IHC; KO verified; tested species: mouse**

Vesicular Acetylcholine Transporter Alters Cholinergic Tone and Synaptic Plasticity in DYT1 Dystonia.

Tassone A, Martella G, Meringolo M, Vanni V, Sciamanna G, Ponterio G, Imbriani P, Bonsi P, Pisani A Movement disorders : official journal of the Movement Disorder Society (2021) : . . **WB, IHC; tested species: mouse**

Neuroprotective Role of Dietary Supplementation with Omega-3 Fatty Acids in the Presence of Basal Forebrain Cholinergic Neurons Degeneration in Aged Mice.

Cutuli D, Landolfo E, Decandia D, Nobili A, Viscomi MT, La Barbera L, Sacchetti S, De Bartolo P, Curci A, D'Amelio M, Farioli-Vecchioli S, et al.

International journal of molecular sciences (2020) 215: . . **WB, IHC; tested species: mouse**

Selective decrease of cholinergic signaling from pedunculopontine and laterodorsal tegmental nuclei has little impact on cognition but markedly increases susceptibility to stress.

Janickova H, Kljakic O, Rosborough K, Raulic S, Matovic S, Gros R, Saksida LM, Bussey TJ, Inoue W, Prado VF, Prado MAM, et al. FASEB journal : official publication of the Federation of American Societies for Experimental Biology (2019) : fj201802108R. .

**WB, IHC; KD verified; tested species: mouse**

Access the online factsheet including applicable protocols at <https://sysy.com/product/139103> 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.