SYSY Antibodies

Rudolf-Wissell-Str. 28a
37079 Göttingen, Germany
Phone: +49 551-50556-0
Fax: +49 551-50556-384
E-mail: sales@sysy.com
Web: www.sysy.com

VAChT (SLC18A3)

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 **reconstitution** add 50 µl H_2O 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	**WB**: 1 : 100 up to 1 : 1000 (AP staining) (see remarks) **IP**: yes **ICC**: 1 : 500 up to 1 : 10000 **IHC**: 1 : 100 up to 1 : 1000 **IHC-P (FFPE)**: 1 : 500 **iDISCO**: external data (see remarks)
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: 24027290
Matching control	139-1P
Remarks	**WB**: To avoid protein aggregation, do not heat samples for SDS-PAGE. **iDISCO**: 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 **a**cetyl**ch**oline **t**ransporter **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**

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**

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**

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**

Age-related neurochemical and behavioural changes in D409V/WT GBA1 mouse: Relevance to lewy body dementia.
Clarke E, Jantrachotechatchawan C, Buhidma Y, Broadstock M, Yu L, Howlett D, Aarsland D, Ballard C, Francis PT
Neurochemistry international (2019) 129: 104502. . **WB, IHC; 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 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.