SYSY Antibodies

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ChAT

Cat.No. 297 013; 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 : 1000 (AP staining) **IP**: not tested yet **ICC**: not tested yet **IHC**: 1 : 500 **IHC-P (FFPE)**: 1 : 500
Immunogen	Recombinant protein corresponding to AA 2 to 640 from rat ChAT (UniProt Id: P32738)
Reactivity	Reacts with: rat (P32738), mouse (Q03059). Other species not tested yet.

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

Background

Cholinergic neurons are involved in numerous neurological functions. Acetylcholine (ACh) is a common neurotransmitter for motoneurons, preganglionic autonomic neurons, postganglionic parasympathetic neurons, a variety of brain regions and some emerging neuron-like stem cells. Two enzymes, **ch**oline **a**cetyl**t**ransferase (**ChAT**) and **a**cetyl**ch**oline**e**sterase (AChE), are involved in the metabolism of ACh.

Selected References for 297 013

Erbb4 Deletion from Medium Spiny Neurons of the Nucleus Accumbens Core Induces Schizophrenia-Like Behaviors via Elevated GABAA Receptor α1 Subunit Expression.
Geng HY, Zhang J, Yang JM, Li Y, Wang N, Ye M, Chen XJ, Lian H, Li XM
The Journal of neuroscience : the official journal of the Society for Neuroscience (2017) 3731: 7450-7464. . **IHC; tested species: mouse**

Diversity and sensorimotor specialization of head direction cells in the mouse thalamus.
Hijazi S, Jiang S, Wülfing MS, Quach J, Lachance PA, Hasselmo ME, Viney TJ
Current biology : CB (2026) 3612: 3114-3130.e6. . **IHC; tested species: mouse**

Convergence and Segregation of Excitatory and Inhibitory Afferents in the Paraventricular Thalamic Nucleus.
Biró L, Buday Z, Kóta K, Lőrincz S, Acsády L
The Journal of neuroscience : the official journal of the Society for Neuroscience (2025) 4543: . . **IHC; tested species: mouse**

INSIHGT: an accessible multi-scale, multi-modal 3D spatial biology platform.
Yau CN, Hung JTS, Campbell RAA, Wong TCY, Huang B, Wong BTY, Chow NKN, Zhang L, Tsoi EPL, Tan Y, Li JJX, et al.
Nature communications (2024) 151: 10888. . **IHC; tested species: mouse**

A Selective Projection from the Subthalamic Nucleus to Parvalbumin-Expressing Interneurons of the Striatum.
Kondabolu K, Doig NM, Ayeko O, Khan B, Torres A, Calvigioni D, Meletis K, Koós T, Magill PJ
eNeuro (2023) 107: . . **IHC; tested species: mouse**

The FTLD Risk Factor TMEM106B Regulates the Transport of Lysosomes at the Axon Initial Segment of Motoneurons.
Lüningschrör P, Werner G, Stroobants S, Kakuta S, Dombert B, Sinske D, Wanner R, Lüllmann-Rauch R, Wefers B, Wurst W, D'Hooge R, et al.
Cell reports (2020) 3010: 3506-3519.e6. . **IHC; tested species: mouse**

Efficient training of mice on the 5-choice serial reaction time task in an automated rodent training system.
Birtalan E, Bánhidi A, Sanders JI, Balázsfi D, Hangya B
Scientific reports (2020) 101: 22362. . **IHC; tested species: mouse**

Optogenetic "low-theta" pacing of the septohippocampal circuit is sufficient for spatial goal finding and is influenced by behavioral state and cognitive demand.
Mouchati PR, Kloc ML, Holmes GL, White SL, Barry JM
Hippocampus (2020) 3011: 1167-1193. . **IHC; tested species: rat**

Npas1+-Nkx2.1+ Neurons Are an Integral Part of the Cortico-pallido-cortical Loop.
Abecassis ZA, Berceau BL, Win PH, García D, Xenias HS, Cui Q, Pamukcu A, Cherian S, Hernández VM, Chon U, Lim BK, et al.
The Journal of neuroscience : the official journal of the Society for Neuroscience (2020) 404: 743-768. . **IHC; tested species: mouse**

Selected General References

Two mRNAs are transcribed from the human gene for choline acetyltransferase.
Lorenzi MV et al. DNA Cell Biol. (1992) PubMed:1388731

Estradiol increases choline acetyltransferase activity in specific basal forebrain nuclei and projection areas of female rats.
Luine VN et al. Exp. Neurol. (1985) PubMed:2990988

Access the online factsheet including applicable protocols at https://sysy.com/product/297013 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.