SYSY Antibodies

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m-AChR-2

Cat.No. 223 017; Monoclonal rat antibody, 100 µg purified IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µg purified IgG, lyophilized. Albumin and azide were added for stabilization. For **reconstitution** add 100 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) (see remarks) **IP**: not tested yet **ICC**: not tested yet **IHC**: 1 : 100 **IHC-P (FFPE)**: not tested yet
Clone	2-1-155
Subtype	IgG1
Immunogen	207 to 388 from human m-AChR-2 (UniProt Id: P08172)
Epitop	AA 207 to 388 from human m-AChR-2 (UniProt Id: P08172)
Reactivity	Reacts with: human (P08172), rat (P10980), mouse (Q9ERZ4). Other species not tested yet.
Remarks	**WB**: To avoid protein aggregation, do not heat samples for SDS-PAGE. This antibody detects also higher molecular weight bands, depending on the glycosilation state of the protein.

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

Background

The **m**uscarinic **a**cetyl**ch**oline **r**eceptors comprise 5 members (m1 - m5) and mediate many acetylcholine driven cellular actions such as adenylate cyclase inhibition, phosphoinositide degeneration and potassium channel mediation. They belong to a larger family of G protein-coupled receptors. Muscarinic acetylcholine receptor **2** has been suggested to function as a presynaptic autoreceptor that inhibits acetylcholine release in the basal forebrain. It is also expressed in cardiac tissue where it is involved in mediation of bradycardia and a decrease in cardiac contractility.

Selected References for 223 017

Evaluation of muscarinic agonist-induced analgesia in muscarinic acetylcholine receptor knockout mice.
Duttaroy A, Gomeza J, Gan JW, Siddiqui N, Basile AS, Harman WD, Smith PL, Felder CC, Levey AI, Wess J
Molecular pharmacology (2002) 625: 1084-93. . **IHC**

Generation of human nucleus basalis organoids with functional nbM-cortical cholinergic projections in transplanted assembloids.
Wang D, Zhang X, Tang XY, Gan Y, Yu H, Wu S, Hong Y, Tao M, Chu C, Qi X, Hu H, et al.
Cell stem cell (2025) 3212: 1833-1848.e7. . **IHC; tested species: human**

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**

Hippocampal hub neurons maintain distinct connectivity throughout their lifetime.
Bocchio M, Gouny C, Angulo-Garcia D, Toulat T, Tressard T, Quiroli E, Baude A, Cossart R
Nature communications (2020) 111: 4559. . **IHC; tested species: mouse**

Subcellular redistribution of m2 muscarinic acetylcholine receptors in striatal interneurons in vivo after acute cholinergic stimulation.
Bernard V, Laribi O, Levey AI, Bloch B
The Journal of neuroscience : the official journal of the Society for Neuroscience (1998) 1823: 10207-18. . **IHC**

Light and electron microscopic study of m2 muscarinic acetylcholine receptor in the basal forebrain of the rat.
Levey AI, Edmunds SM, Hersch SM, Wiley RG, Heilman CJ
The Journal of comparative neurology (1995) 3513: 339-56. . **IHC**

Selected General References

Altered striatal function and muscarinic cholinergic receptors in acetylcholinesterase knockout mice.
Volpicelli-Daley LA et al. Mol. Pharmacol. (2003) PubMed:14645660

Characterization of central inhibitory muscarinic autoreceptors by the use of muscarinic acetylcholine receptor knock-out mice.
Zhang W et al. J. Neurosci. (2002) PubMed:11880500

Association of m1 and m2 muscarinic receptor proteins with asymmetric synapses in the primate cerebral cortex: morphological evidence for cholinergic modulation of excitatory neurotransmission.
Mrzljak L et al. Proc. Natl. Acad. Sci. U.S.A. (1993) PubMed:8389473

Access the online factsheet including applicable protocols at https://sysy.com/product/223017 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.