SYSY Antibodies

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Aquaporin4

Cat.No. 429 011BT; Monoclonal mouse antibody, 100 µg purified IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µg purified IgG, lyophilized, labeled with Biotin. 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	**ICC**: 1 : 500 up to 1 : 1000 **IHC**: 1 : 500 up to 1 : 1000 **IHC-P (FFPE)**: 1 : 1000 up to 1 : 2000
Label	biotin
Clone	325B5A5
Subtype	IgG2a (κ light chain)
Immunogen	Recombinant protein corresponding to residues near the carboxy terminus of mouse Aquaporin-4 isoform 2 (UniProt Id: P55088-1)
Reactivity	Reacts with: mouse (P55088-1), rat (P47863), human (P55087). Other species not tested yet.
Matching control	429-0P

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

Background

Aquaporin 4 (AQP4) is the most abundant bidirectional water-channel in the central nervous system. It is particularly abundant in astrocytes, where it is highly concentrated in the perivascular end-feet surrounding blood vessels and at the interfaces between brain tissue and cerebrospinal fluid (1). AQP4 is also expressed in ependymal cells and, outside the CNS, in tissues including the kidney, skeletal muscle, lung, stomach and several glandular epithelia (2,3).
It contributes to the regulation of water and ion homeostasis, extracellular volume, brain edema and blood–brain barrier function. AQP4 is also an important component of the glymphatic system, which facilitates the movement and clearance of substances through the brain interstitial space (1,4).
Alterations in AQP4 expression or localization have been implicated in a number of pathological conditions including neuroinflammation, brain edema, traumatic brain injury, neurodegenerative disorders and neuromyelitis optica spectrum disorders (NMOSD)(4).

For more information on protein expression pattern, please refer to the overview image in our SYSY Antibodies ATLAS.

Selected General References

Physiological roles of aquaporin-4 in brain.
Nagelhus EA et al. Physiol. Rev. (2013) PubMed:24137016

Aquaporin-4 and Cognitive Disorders.
Wang Y et al. Aging Dis (2022) PubMed:35111362

Tissue Distribution of the Readthrough Isoform of AQP4 Reveals a Dual Role of AQP4ex Limited to CNS.
Palazzo C et al. Int J Mol Sci (2020) PubMed:32102323

Aquaporin-4 in Astroglial Cells in the CNS and Supporting Cells of Sensory Organs-A Comparative Perspective.
Gleiser C et al. Int J Mol Sci (2016) PubMed:27571065

Access the online factsheet including applicable protocols at https://sysy.com/product/429011BT 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.