SYSY Antibodies

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Proton ATPase 116 kDa subunit

Cat.No. 109 002; Polyclonal rabbit antibody, 200 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	200 µl antiserum, lyophilized. For **reconstitution** add 200 µl H_2O, then aliquot and store at -20°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**: 1 : 100 up to 1 : 500 (see remarks) **IHC**: not recommended **IHC-P (FFPE)**: 1 : 200
Immunogen	Synthetic peptide corresponding to AA 826 to 838 from rat Proton ATPase (UniProt Id: P25286)
Reactivity	Reacts with: rat (P25286), mouse (Q9Z1G4), hamster. Other species not tested yet.
Specificity	Specific for the α1 116kDa subunit. K.D. validated PubMed: 21795392
Matching control	109-0P
Remarks	**WB**: To avoid protein aggregation, do not heat samples for SDS-PAGE. **ICC**: Methanol fixation is recommended.

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

Background

The **Proton ATPase**, also referred to as **vacuolar proton pump**, is involved in the acidification of many intracellular organelles. The pump is composed of more than 10 subunits, of which the 116 kDa subunit is the largest. This subunit has an N-terminal cytoplasmic domain and a C-terminal transmembrane domain with probably 6 transmembrane regions. The 116 kDa subunit is essential for proton pump activity.

Selected References for 109 002

Tetanus toxin is transported in a novel neuronal compartment characterized by a specialized pH regulation.
Bohnert S, Schiavo G
The Journal of biological chemistry (2005) 28051: 42336-44. . **WB, ICC; tested species: rat**

Lysosomal proteolysis and autophagy require presenilin 1 and are disrupted by Alzheimer-related PS1 mutations.
Lee JH, Yu WH, Kumar A, Lee S, Mohan PS, Peterhoff CM, Wolfe DM, Martinez-Vicente M, Massey AC, Sovak G, Uchiyama Y, et al.
Cell (2010) 1417: 1146-58. . **WB, ICC; tested species: mouse**

Da-Bu-Yin-Wan rescues cognitive deficits in aging and Alzheimer's disease models by Wnt/β-catenin-dependent restoration of lysosomal acidification.
Zhang H, Zhang H, Zhao M, Luo W, Chen S, Wang P, Liu X, Xu S
Phytomedicine : international journal of phytotherapy and phytopharmacology (2026) 153: 157916. . **WB; tested species: mouse**

Suggestion of creatine as a new neurotransmitter by approaches ranging from chemical analysis and biochemistry to electrophysiology.
Bian X, Zhu J, Jia X, Liang W, Yu S, Li Z, Zhang W, Rao Y
eLife (2023) 12: . . **WB; tested species: mouse**

Distinct insulin granule subpopulations implicated in the secretory pathology of diabetes types 1 and 2.
Kreutzberger AJB, Kiessling V, Doyle CA, Schenk N, Upchurch CM, Elmer-Dixon M, Ward AE, Preobraschenski J, Hussein SS, Tomaka W, Seelheim P, et al.
eLife (2020) 9: . . **WB; tested species: rat**

Newly produced synaptic vesicle proteins are preferentially used in synaptic transmission.
Truckenbrodt S, Viplav A, Jähne S, Vogts A, Denker A, Wildhagen H, Fornasiero EF, Rizzoli SO
The EMBO journal (2018) : . . **ICC; tested species: rat**

Composition of isolated synaptic boutons reveals the amounts of vesicle trafficking proteins.
Wilhelm BG, Mandad S, Truckenbrodt S, Kröhnert K, Schäfer C, Rammner B, Koo SJ, Claßen GA, Krauss M, Haucke V, Urlaub H, et al.
Science (New York, N.Y.) (2014) 3446187: 1023-8. . **ICC; tested species: mouse,rat**

BAX inhibitor-1-associated V-ATPase glycosylation enhances collagen degradation in pulmonary fibrosis.
Lee MR, Lee GH, Lee HY, Kim DS, Chung MJ, Lee YC, Kim HR, Chae HJ
Cell death & disease (2014) 5: e1113. . **WB; tested species: human**

Mycobacterium tuberculosis exploits asparagine to assimilate nitrogen and resist acid stress during infection.
Gouzy A, Larrouy-Maumus G, Bottai D, Levillain F, Dumas A, Wallach JB, Caire-Brandli I, de Chastellier C, Wu TD, Poincloux R, Brosch R, et al.
PLoS pathogens (2014) 102: e1003928. . **ICC; tested species: mouse**

Loss of the SV2-like protein SVOP produces no apparent deficits in laboratory mice.
Yao J, de la Iglesia HO, Bajjalieh SM
PloS one (2013) 87: e68215. . **WB; tested species: mouse**

The neural cell adhesion molecule promotes maturation of the presynaptic endocytotic machinery by switching synaptic vesicle recycling from adaptor protein 3 (AP-3)- to AP-2-dependent mechanisms.
Shetty A, Sytnyk V, Leshchyns'ka I, Puchkov D, Haucke V, Schachner M
The Journal of neuroscience : the official journal of the Society for Neuroscience (2013) 3342: 16828-45. . **WB; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/109002 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.