SYSY Antibodies

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Ankyrin G

Cat.No. 386 003; 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) (see remarks) **IP**: not tested yet **ICC**: 1 : 500 up to 1 : 1000 **IHC**: 1 : 500 **IHC-P (FFPE)**: 1 : 500
Immunogen	Recombinant protein corresponding to residues near the carboxy terminus of mouse Ankyrin G. (UniProt Id: G5E8K5-1)
Reactivity	Reacts with: rat (O70511-1), mouse (G5E8K5-1), human (Q12955). Other species not tested yet.
Specificity	Specific for Ankyrin G, detects all described splice variants.
Remarks	**WB**: Due to the large size of this protein, we recommend NuPAGE 3-8% Tris-Acetate gels for SDS-PAGE.

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

Background

Ankyrin G is a membrane-cytoskeleton linker. It may participate in the targeting and clustering of ion channels and cell adhesion molecules at the nodes of Ranvier and axonal initial segments (AIS).

Selected References for 386 003

Impaired OTUD7A-dependent Ankyrin regulation mediates neuronal dysfunction in mouse and human models of the 15q13.3 microdeletion syndrome.
Unda BK, Chalil L, Yoon S, Kilpatrick S, Irwin C, Xing S, Murtaza N, Cheng A, Brown C, Afonso A, McCready E, et al.
Molecular psychiatry (2023) 284: 1747-1769. . **WB, ICC; tested species: human,mouse**

Deletion of class II ARFs in mice causes tremor by the Nav1.6 loss in cerebellar Purkinje cell axon initial segments.
Hosoi N, Shibasaki K, Hosono M, Konno A, Shinoda Y, Kiyonari H, Inoue K, Muramatsu SI, Ishizaki Y, Hirai H, Furuichi T, et al.
The Journal of neuroscience : the official journal of the Society for Neuroscience (2019) : . . **IHC; tested species: mouse**

Distinct Arp2/3 isocomplexes drive axonal actin ring assembly and integrity.
Costa AR, Lopes T, Rodrigues LP, Rocha JM, Mateus JC, Moura ML, Spahn C, Lampe M, Kogata N, Pereira AJ, Aguiar P, et al.
Science advances (2026) 1239: eaec9522. . **ICC; tested species: rat**

A correlation-based tool for quantifying membrane periodic skeleton associated periodicity.
Vanspauwen SK, Luque-Fernández V, Rasmussen HB
Frontiers in neuroinformatics (2025) 19: 1628538. . **ICC; tested species: rat**

Visual activity enhances neuronal excitability in thalamic relay neurons.
Duménieu M, Fronzaroli-Molinieres L, Naudin L, Iborra-Bonnaure C, Wakade A, Zanin E, Aziz A, Ankri N, Incontro S, Denis D, Marquèze-Pouey B, et al.
Science advances (2025) 114: eadp4627. . **IHC; tested species: rat**

Development of myelination and axon diameter for fast and precise action potential conductance.
Nabel AL, Teich L, Wohlfrom H, Alexandrova O, Heß M, Pecka M, Grothe B
Glia (2024) : . . **IHC**

Motor learning changes the axon initial segment of the spinal motoneuron.
Wang Y, Chen Y, Chen L, Herron BJ, Chen XY, Wolpaw JR
The Journal of physiology (2024) 6029: 2107-2126. . **IHC; tested species: rat**

Altered neurological and neurobehavioral phenotypes in a mouse model of the recurrent KCNB1-p.R306C voltage-sensor variant.
Kang SK, Hawkins NA, Thompson CH, Baker EM, Echevarria-Cooper DM, Barse L, Thenstedt T, Dixon CJ, Speakes N, George AL, Kearney JA, et al.
Neurobiology of disease (2024) 194: 106470. . **ICC; tested species: mouse**

Kv7/KCNQ potassium channels in cortical hyperexcitability and juvenile seizure-related death in Ank2-mutant mice.
Oh H, Lee S, Oh Y, Kim S, Kim YS, Yang Y, Choi W, Yoo YE, Cho H, Lee S, Yang E, et al.
Nature communications (2023) 141: 3547. . **IHC; tested species: mouse**

Spectrin-beta 2 facilitates the selective accumulation of GABAA receptors at somatodendritic synapses.
Smalley JL, Cho N, Ng SFJ, Choi C, Lemons AHS, Chaudry S, Bope CE, Dengler JS, Zhang C, Rasband MN, Davies PA, et al.
Communications biology (2023) 61: 11. . **ICC; tested species: mouse**

Neurofilament Levels in Dendritic Spines Associate with Synaptic Status.
Gürth CM, do Rego Barros Fernandes Lima MA, Macarrón Palacios V, Cereceda Delgado AR, Hubrich J, D'Este E
Cells (2023) 126: . . **ICC; tested species: rat**

Endocytosis in the axon initial segment maintains neuronal polarity.
Eichel K, Uenaka T, Belapurkar V, Lu R, Cheng S, Pak JS, Taylor CA, Südhof TC, Malenka R, Wernig M, Özkan E, et al.
Nature (2022) : . . **ICC; tested species: mouse**

The core PCP protein Prickle2 regulates axon number and AIS maturation by binding to AnkG and modulating microtubule bundling.
Dorrego-Rivas A, Ezan J, Moreau MM, Poirault-Chassac S, Aubailly N, De Neve J, Blanchard C, Castets F, Fréal A, Battefeld A, Sans N, et al.
Science advances (2022) 836: eabo6333. . **ICC; tested species: rat**

Access the online factsheet including applicable protocols at https://sysy.com/product/386003 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.