SYSY Antibodies

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Kv7.2 (KCNQ2)

Cat.No. 368 103; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Albumin was 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 **IHC**: 1 : 500 **IHC-P (FFPE)**: 1 : 500 **EM**: external data (see remarks)
Immunogen	Synthetic peptide corresponding to AA 16 to 37 from mouse Kv7.2 (UniProt Id: Q9Z351-1)
Reactivity	Reacts with: rat (O88943), mouse (Q9Z351). Other species not tested yet.
Matching control	368-1P
Remarks	**WB**: To avoid protein aggregation, do not heat samples for SDS-PAGE. **EM**: This antibody has been successfully applied and published for this method by customers (see application-specific references).

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

Background

Five voltage gated potassium channels **Kv7**, encoded by the genes KCNQ 1-5, have been described in mammals so far. They are integral membrane proteins and show distinct distribution patterns. Kv7.2, **Kv7.3** and Kv7.5 are widely expressed in different brain regions whereas Kv7.1 and Kv7.4 show more restricted expression profiles.
Kv7.3 forms the M channel with either Kv7.2 or Kv7.5. This ion channel is a slowly activating and deactivating potassium channel that plays a critical role in the regulation of neuronal excitability.

Selected References for 368 103

Mislocalization of KCNQ2 Channels as a Pathogenic Mechanism in KCNQ2 Developmental and Epileptic Encephalopathy.
Springer K, Soh H, Paz Zavala R, Varghese N, Lutz C, Zuberi AR, Jackson AC, Tzingounis AV
The Journal of neuroscience : the official journal of the Society for Neuroscience (2026) 463: . . **WB, IHC; KO verified; tested species: mouse**

Neuron-oligodendrocyte potassium shuttling at nodes of Ranvier protects against inflammatory demyelination.
Kapell H, Fazio L, Dyckow J, Schwarz S, Cruz-Herranz A, Mayer C, Campos J, D'Este E, Möbius W, Cordano C, Pröbstel AK, et al.
The Journal of clinical investigation (2023) 1337: . . **EM; tested species: mouse**

Ultrastructural anatomy of nodes of Ranvier in the peripheral nervous system as revealed by STED microscopy.
D'Este E, Kamin D, Balzarotti F, Hell SW
Proceedings of the National Academy of Sciences of the United States of America (2017) 1142: E191-E199. . **ICC; tested species: mouse**

Molecular and functional profiling of cell diversity and identity in the lateral superior olive, an auditory brainstem center with ascending and descending projections.
Marasli oglu-Sperber A, Pizzi E, Fisch JO, Kattler K, Ritter T, Friauf E
Frontiers in cellular neuroscience (2024) 18: 1354520. . **IHC; tested species: mouse**

Selected General References

The Kv7.2/Kv7.3 heterotetramer assembles with a random subunit arrangement.
Stewart AP et al. J. Biol. Chem. (2012) PubMed:22334706

Colocalization and coassembly of two human brain M-type potassium channel subunits that are mutated in epilepsy.
Cooper EC et al. Proc. Natl. Acad. Sci. U.S.A. (2000) PubMed:10781098

Two types of K(+) channel subunit, Erg1 and KCNQ2/3, contribute to the M-like current in a mammalian neuronal cell.
Selyanko AA et al. J. Neurosci. (1999) PubMed:10479678

A novel potassium channel gene, KCNQ2, is mutated in an inherited epilepsy of newborns.
Singh NA et al. Nat. Genet. (1998) PubMed:9425895

Access the online factsheet including applicable protocols at https://sysy.com/product/368103 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.