

## Kv7.2

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 <b>reconstitution</b> add 50 µl H <sub>2</sub> O 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	<b>WB:</b> 1 : 1000 (AP staining) (see remarks) <b>IP:</b> not tested yet <b>ICC:</b> 1 : 500 <b>IHC:</b> 1 : 500 <b>IHC-P:</b> 1 : 500 <b>EM:</b> 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	<b>WB:</b> To avoid protein aggregation, do not heat samples for SDS-PAGE. <b>EM:</b> 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

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

### 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 our antibodies and control proteins / peptides are shipped lyophilized (vacuum freeze-dried) and are stable in this form 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. **They must not be stored in the freezer when still lyophilized!** Temperatures below zero may cause loss of performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long term storage (several months) may lead to aggregation.
- **Control peptides** should be kept at -20°C before reconstitution.

### Long Term Storage after Reconstitution (General Considerations)

- The storage freezer must not be of the frost-free variety ("no-frost freezer"). This cycle between freezing and thawing (to reduce frost-build-up), which is exactly what should be avoided. For the same reason, antibody vials should be placed in an area of the freezer that has minimal temperature fluctuations, for instance towards the back rather than on a door shelf.
- Aliquot the antibody and store frozen (-20°C to -80°C). Avoid very small aliquots (below 20 µl) and use the smallest storage vial or tube possible. The smaller the aliquot, the more the stock concentration is affected by evaporation and adsorption of the antibody to the surface of the storage vial or tube. Adsorption of the antibody to the surface leads to a substantial loss of activity.
- The addition of glycerol to a final concentration of 50% lowers the freezing point of your stock and keeps your antibody at -20°C in liquid state. This efficiently avoids freeze and thaw cycles.

### Product Specific Hints for Storage

#### Control proteins / peptides

- Store at -20°C to -80°C.

#### Monoclonal Antibodies

- **Ascites** and **hybridoma supernatant** should be stored at -20°C up to -80°C. **Prolonged storage at 4°C is not recommended!** Unlike serum, ascites may contain proteases that will degrade the antibodies.
- **Purified IgG** should be stored at -20°C up to -80°C. Adding a carrier protein like BSA will increase long term stability. Many of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

#### Polyclonal Antibodies

- **Crude antisera:** With anti-microbials added, they may be stored at 4°C. However, frozen storage (-20°C up to -80°C) is preferable.
- **Affinity purified antibodies:** Less robust than antisera. Storage at -20°C up to -80°C is recommended. Adding a carrier protein like BSA will increase long term stability. Most of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

#### Fluorescence-labeled Antibodies

- Store as a liquid with 1 : 1 (v/v) glycerol at -20°C. Protect these antibodies from light exposure.

## Avoid repeated freeze-thaw cycles for all antibodies!

## FAQ - How should I reconstitute my antibody?

### Reconstitution

- All our purified antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the amount of deionized water given in the respective datasheet. If higher volumes are preferred, add water as mentioned above and then the desired amount of PBS and a stabilizing carrier protein (e.g. BSA) to a final concentration of 2%. Some of our antibodies already contain albumin. Take this into account when adding more carrier protein. For complete reconstitution, carefully remove the lid. After adding water, briefly vortex the solution. You can spin down the liquid by placing the vial into a 50 ml centrifugation tube filled with paper.
- If desired, add small amounts of azide or thimerosal to prevent microbial growth. This is especially recommended if you want to keep an aliquot at 4°C.
- After reconstitution of fluorescence-labeled antibodies, add 1 : 1 (v/v) glycerol to a final concentration of 50%. This lowers the freezing point of your stock and keeps your antibody in liquid state at -20°C.
- Glycerol may also be added to unlabeled primary antibodies. It is a suitable way to avoid freeze-thaw cycles.
- Please refer to our **tips and hints for subsequent storage** of reconstituted antibodies and control peptides and proteins.