

## GluK2

Cat.No. 180 003; 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 <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) <b>IP:</b> not tested yet <b>ICC:</b> 1 : 500 <b>IHC:</b> 1 : 500 (see remarks) <b>IHC_P:</b> not tested yet
Immunogen	Recombinant protein corresponding to AA 844 to 908 from rat GluK2 (UniProt Id: P42260)
Reactivity	Reacts with: human (Q13002), rat (P42260), mouse (P39087). Other species not tested yet.
Specificity	K.O. PubMed: <a href="https://pubmed.ncbi.nlm.nih.gov/26448475/">26448475</a>
Matching control	180-0P
Remarks	<b>IHC:</b> For best results, heat-mediated antigen retrieval (citrate buffer pH 6) is recommended.

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

## Background

Ionotropic glutamate receptors (iGluRs) mediate rapid excitatory neurotransmission in the mammalian CNS. They can be subdivided into three major groups, the AMPA/GluA, NMDA/GluN, and kainate/GluK receptors (KARs).

mRNAs coding for glutamate receptors are substrates for an adenosine deaminase acting on RNA (ADAR) that increases the diversity of these proteins. KARs can be found at pre- and postsynaptic sites and are composed of five different subunits: GluK1, **GluK2** and **GluK3** can form homomeric receptors whereas GluK4 and **GluK5** form heteromeric receptors with GluK1-3.

## Selected References for 180 003

A comparative analysis of kainate receptor GluK2 and GluK5 knockout mice in a pure genetic background.

Iida I, Konno K, Natsume R, Abe M, Watanabe M, Sakimura K, Terunuma M  
Behavioural brain research (2021) 405: 113194. . **WB, IHC\_FR; KO verified**

Behavioral analysis of kainate receptor KO mice and the role of GluK3 subunit in anxiety.

Iida I, Konno K, Natsume R, Abe M, Watanabe M, Sakimura K, Terunuma M  
Scientific reports (2024) 141: 4521. . **WB; tested species: mouse**

Presenilin and APP Regulate Synaptic Kainate Receptors.

Barthet G, Moreira-de-Sá A, Zhang P, Deforges S, Castanheira J, Gorlewicz A, Mulle C  
The Journal of neuroscience : the official journal of the Society for Neuroscience (2022) 4249: 9253-9262. . **IHC\_FR; tested species: mouse**

Ccny knockout mice display an enhanced susceptibility to kainic acid-induced epilepsy.

Hwang H, Seo J, Choi Y, Cho E, Sohn H, Jang J, Lee AR, Lee J, Kim S, Koh HY, Park M, et al.  
Pharmacological research (2020) 160: 105100. . **WB; tested species: mouse**

Determination of kainate receptor subunit ratios in mouse brain using novel chimeric protein standards.

Watanabe-Iida I, Konno K, Akashi K, Abe M, Natsume R, Watanabe M, Sakimura K  
Journal of neurochemistry (2016) 1362: 295-305. . **WB; KO verified; tested species: mouse**

Novel application of stem cell-derived neurons to evaluate the time- and dose-dependent progression of excitotoxic injury.

Gut IM, Beske PH, Hubbard KS, Lyman ME, Hamilton TA, McNutt PM  
PloS one (2013) 85: e64423. . **WB**

## Selected General References

Glutamate receptor ion channels: structure, regulation, and function.

Traynelis SF, Wollmuth LP, McBain CJ, Menniti FS, Vance KM, Ogden KK, Hansen KB, Yuan H, Myers SJ, Dingledine R  
Pharmacological reviews (2010) 623: 405-96. .

Structure and assembly mechanism for heteromeric kainate receptors.

Kumar J, Schuck P, Mayer ML  
Neuron (2011) 712: 319-31. .

A nomenclature for ligand-gated ion channels.

Collingridge GL, Olsen RW, Peters J, Spedding M  
Neuropharmacology (2009) 561: 2-5. .

GluR7 is an essential subunit of presynaptic kainate autoreceptors at hippocampal mossy fiber synapses.

Pinheiro PS, Perrais D, Coussen F, Barhanin J, Bettler B, Mann JR, Malva JO, Heinemann SF, Mulle C  
Proceedings of the National Academy of Sciences of the United States of America (2007) 10429: 12181-6. .

Functional significance of the kainate receptor GluR6(M836I) mutation that is linked to autism.

Strutz-Seebohm N, Korniyuchuk G, Schwarz R, Baltaev R, Ureche ON, Mack AF, Ma ZL, Hollmann M, Lang F, Seebohm G  
Cellular physiology and biochemistry : international journal of experimental cellular physiology, biochemistry, and pharmacology (2006) 184-5: 287-94. .

Access the online factsheet including applicable protocols at <https://sysy.com/product/180003> 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.