

## GluK5 (KA2)

Cat.No. 180 103; 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> not tested yet <b>IHC-P:</b> not tested yet <b>IHC-Fr:</b> 1 : 1000 (see remarks)
Immunogen	Recombinant protein corresponding to AA 828 to 979 from rat GluK5 (UniProt Id: Q63273)
Reactivity	Reacts with: rat (Q63273), mouse (Q61626). Other species not tested yet.
Matching control	180-1P
Remarks	<b>IHC-Fr:</b> Antibody requires Clarke liquid fixation (1 vol. acetic acid, 6 vol. ethanol, 15 min at RT).

**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) (1, 2).

mRNAs coding for glutamate receptors are substrates for an adenosine deaminase acting on RNA (ADAR) that increases the diversity of these proteins (3). 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 (4).

### Selected References for 180 103

Presenilin and APP Regulate Synaptic Kainate Receptors.  
Barthet G, Moreira-de-Sá A, Zhang P, Deforges S, Castanheira J, Gorlewicz A, Mülle C  
The Journal of neuroscience : the official journal of the Society for Neuroscience (2022) 4249: 9253-9262. . **IHC-Fr; tested species: mouse**

Localization of kainate receptors in inner and outer hair cell synapses.  
Fujikawa T, Petralia RS, Fitzgerald TS, Wang YX, Millis B, Morgado-Díaz JA, Kitamura K, Kachar B  
Hearing research (2014) 314: 20-32. . **IHC; tested species: rat**

Anxiety-like behavior of prenatally stressed rats is associated with a selective reduction of glutamate release in the ventral hippocampus.  
Marrocco J, Mairesse J, Ngomba RT, Silletti V, Van Camp G, Bouwalerh H, Summa M, Pittaluga A, Nicoletti F, Maccari S, Morley-Fletcher S, et al.  
The Journal of neuroscience : the official journal of the Society for Neuroscience (2012) 3248: 17143-54. . **WB**

INSIGHT: an accessible multi-scale, multi-modal 3D spatial biology platform.  
Yau CN, Hung JTS, Campbell RAA, Wong TCY, Huang B, Wong BTY, Chow NKN, Zhang L, Tsoi EPL, Tan Y, Li JJX, et al.  
Nature communications (2024) 151: 10888. . **IHC; tested species: mouse**

### Selected General References

Glutamate receptor ion channels: structure, regulation, and function.  
Traynelis SF et al. Pharmacol Rev (2010) PubMed:20716669

Structure and assembly mechanism for heteromeric kainate receptors.  
Kumar J et al. Neuron (2011) PubMed:21791290

A nomenclature for ligand-gated ion channels.  
Collingridge GL et al. Neuropharmacology (2009) PubMed:18655795

GluR7 is an essential subunit of presynaptic kainate autoreceptors at hippocampal mossy fiber synapses.  
Pinheiro PS et al. Proc. Natl. Acad. Sci. U.S.A. (2007) PubMed:17620617

Functional significance of the kainate receptor GluR6(M836I) mutation that is linked to autism.  
Strutz-Seebohm N et al. Cell. Physiol. Biochem. (2006) PubMed:17167233

The kainate receptor subunit GluR6 mediates metabotropic regulation of the slow and medium AHP currents in mouse hippocampal neurones.  
Fisahn A et al. J. Physiol. (Lond.) (2005) PubMed:15539395

Co-assembly of two GluR6 kainate receptor splice variants within a functional protein complex.  
Coussen F et al. Neuron (2005) PubMed:16102538

Time-dependent effect of kainate-induced seizures on glutamate receptor GluR5, GluR6, and GluR7 mRNA and Protein Expression in rat hippocampus.  
Ullal G et al. Epilepsia (2005) PubMed:15857425

Access the online factsheet including applicable protocols at <https://sysy.com/product/180103> 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.