

## GluK5

Cat.No. 180-1P; control protein, 100 µg protein (lyophilized)

### Data Sheet

Reconstitution/ Storage	100 µg protein, lyophilized. For <b>reconstitution</b> add 100 µl H <sub>2</sub> O to get a 1mg/ml solution in TBS. Then aliquot and store at -20°C to -80°C until use. Control proteins should be stored at +4°C when still lyophilized. Do not freeze! For detailed information, see back of the data sheet.
Immunogen	Recombinant protein corresponding to AA 828 to 979 from rat GluK5 (UniProt Id: Q63273)
Recommended dilution	Optimal concentrations should be determined by the end-user.
Matching antibodies	180 103
Remarks	This control protein consists of the recombinant protein (aa 828 - 979 of rat GluK 5) that has been used for immunization. It has been tested in preadsorption experiments and blocks efficiently and specifically the corresponding signal in Western blots. The amount of protein needed for efficient blocking depends on the titer and on the affinity of the antibody to the antigen.

**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 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, Mülle 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. .
- The kainate receptor subunit GluR6 mediates metabotropic regulation of the slow and medium AHP currents in mouse hippocampal neurones.  
Fisahn A, Heinemann SF, McBain CJ  
The Journal of physiology (2005) 562Pt 1: 199-203. .
- Co-assembly of two GluR6 kainate receptor splice variants within a functional protein complex.  
Coussen F, Perrais D, Jaskolski F, Sachidhanandam S, Normand E, Bockaert J, Marin P, Mülle C  
Neuron (2005) 474: 555-66. .
- Time-dependent effect of kainate-induced seizures on glutamate receptor GluR5, GluR6, and GluR7 mRNA and Protein Expression in rat hippocampus.  
Ullal G, Fahnestock M, Racine R  
Epilepsia (2005) 465: 616-23. .
- Differential trafficking of GluR7 kainate receptor subunit splice variants.  
Jaskolski F, Normand E, Mülle C, Coussen F  
The Journal of biological chemistry (2005) 28024: 22968-76. .
- Channel-opening kinetics of GluR6 kainate receptor.  
Li G, Oswald RE, Niu L  
Biochemistry (2003) 4242: 12367-75. .
- Glutamate receptor RNA editing: a molecular analysis of GluR2, GluR5 and GluR6 in human brain tissues and in NT2 cells following in vitro neural differentiation.  
Barbon A, Vallini I, La Via L, Marchina E, Barlati S  
Brain research. Molecular brain research (2003) 1172: 168-78. .

Access the online factsheet including applicable protocols at <https://sysy.com/product/180-1P> 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 a 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.