SYSY Antibodies

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GluK2 (GluR6)

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 **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) **IP**: not tested yet **ICC**: 1 : 500 **IHC**: 1 : 500 (see remarks) **IHC-P**: 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. validated PubMed: 26448475
Matching control	180-0P
Remarks	**IHC**: Antigen retrieval with citrate buffer pH 6 can be applied to improve the signal to noise ratio.

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**

INSIHGT: 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**

Oligodendrocyte precursor cell AMPA receptors differ with age and brain region while kainate receptors remain stable.
Kamen Y, Evans KA, Ng YT, Dietmann S, Káradóttir RT
iScience (2025) 2810: 113560. . **WB; tested species: mouse**

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**

Expression mapping, quantification, and complex formation of GluD1 and GluD2 glutamate receptors in adult mouse brain.
Nakamoto C, Konno K, Miyazaki T, Nakatsukasa E, Natsume R, Abe M, Kawamura M, Fukazawa Y, Shigemto R, Yamasaki M, Sakimura K, et al.
The Journal of comparative neurology (2019) : . . **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 et al. Pharmacol Rev (2010) PubMed:20716669

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

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 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.