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 (FFPE)**: not tested yet **IHC-Fr**: external data (see remarks)
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. **IHC-Fr**: This antibody has been successfully applied and published for this method by customers (see application-specific references). It has not been validated using our standard protocols.

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**

Aberrant hippocampal gamma oscillations in a mouse model of fragile X syndrome: insights from in vitro slice models.
Pollali E, Donaire DF, Ángel MD, Demiray YE, Lacalle SE, Hollnagel JO, Annamneedi A, Çalışkan G
Molecular autism (2025) 161: 55. . **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

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 SYSY antibodies and control proteins/peptides are shipped lyophilized (vacuum freeze-dried). In this form, they remain stable 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. **Do not freeze lyophilized antibodies**. Temperatures below 0°C may impair performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long-term storage of lyophilized fluorophore-conjugates may cause aggregation.
- **Control peptides** should be stored at -20°C before reconstitution.

Long Term Storage after Reconstitution (General Considerations)

- **Do not use frost-free ("no-frost") freezers.** These units periodically warm to remove ice buildup, causing freeze–thaw cycles that can damage antibodies.
- Store vials in areas with minimal temperature fluctuation - preferably toward the back of the freezer, not on the door.
- Aliquot reconstituted antibodies and store at –20°C to –80°C.
- Avoid very small aliquots (<20 µL), as evaporation and adsorption to tube surfaces can reduce antibody concentration and activity.
- Use the smallest practical storage vial to minimize surface area.
- Adding glycerol to a final concentration of 50% prevents freezing at -20°C, allowing storage in liquid form and effectively avoiding freeze–thaw cycles.

Product Specific Hints for Storage

Control proteins / peptides

- Store at -20°C to -80°C

Monoclonal Antibodies

- **Ascites and hybridoma supernatant:** Store at -20°C to -80°C
  Prolonged storage at 4°C is not recommended, as proteases present in ascites may degrade antibodies.
- **Purified IgG:** Store at -20°C to -80°C
  Adding a carrier protein (e.g., BSA) enhances long-term stability.
  Many SYSY antibodies already contain carrier proteins - refer to the respective datasheet for details.

Polyclonal Antibodies

- **Crude antisera:** Can be stored at 4°C with antimicrobials added, but -20°C to -80°C is preferred
- **Affinity-purified antibodies:** Less stable than antisera; store at -20°C to -80°C
  Adding a carrier protein such as BSA improves long-term stability.
  Most SYSY antibodies already contain carrier proteins - refer to the respective datasheet for details.

Fluorescence-labeled Antibodies

- Store as a liquid with 1:1 (v/v) glycerol at -20°C, and protect from light exposure

Avoid repeated freeze-thaw cycles for all antibodies!

FAQ - How should I reconstitute my antibody?

Reconstitution

- All purified SYSY antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the volume of deionized water specified in the corresponding datasheet. If a larger final volume is desired, first add the recommended amount of water, then adjust with PBS and, if needed, add a stabilizing carrier protein (e.g., BSA) to a final concentration of 2%. Some SYSY antibodies already contain albumin; please take this into account before adding additional carrier protein.

For complete reconstitution, carefully remove the vial cap. After adding water, briefly vortex the solution. To collect the liquid at the bottom of the vial, place the vial inside a 50 ml centrifuge tube padded with paper and centrifuge briefly.

- If desired, small amounts of azide or thimerosal may be added to prevent microbial growth. This is particularly recommended when storing an aliquot at 4°C.
- After reconstitution of fluorescence-labeled antibodies, add glycerol 1:1 (v/v) to achieve a final concentration of 50%. This prevents freezing at –20°C and keeps the antibody in liquid form, effectively avoiding freeze–thaw cycles.
- Glycerol may also be added to unlabeled primary antibodies as a general measure to prevent freeze–thaw damage.
- For further guidance, please refer to our **storage tips** and recommendations for reconstituted antibodies, control peptides, and control proteins.