SYSY Antibodies

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GluA2 (AMPA2)

Cat.No. 182 103; 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 **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**: yes **ICC**: 1 : 500 **IHC**: 1 : 500 **IHC-P (FFPE)**: not tested yet **ExM**: external data (see remarks)
Immunogen	Recombinant protein corresponding to AA 836 to 883 from rat GluA2 (UniProt Id: P19491)
Reactivity	Reacts with: human (P42262), rat (P19491), mouse (P23819). Other species not tested yet.
Specificity	Some cross reactivity to GluA 3.
Matching control	182-1P
Remarks	**ExM**: This antibody has been successfully applied and published for this method by customers (see application-specific references).

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

Background

Ionotropic **glu**tamate **r**eceptors (i**GluR**s) 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. Glutamate receptors of the AMPA subtype are monovalent cation channels and are composed of the four AMPA subunits GluA 1, **GluA 2**, GluA 3, and GluA 4.

For more information on protein expression pattern, please refer to the overview image in our SYSY Antibodies ATLAS.

Selected References for 182 103

Clustering of Tau fibrils impairs the synaptic composition of α3-Na+/K+-ATPase and AMPA receptors.
Shrivastava AN, Redeker V, Pieri L, Bousset L, Renner M, Madiona K, Mailhes-Hamon C, Coens A, Buée L, Hantraye P, Triller A, et al.
The EMBO journal (2019) : . . **IP, ICC, IHC; tested species: mouse**

PICK1 regulates AMPA receptor endocytosis via direct interactions with AP2 α-appendage and dynamin.
Fiuza M, Rostosky CM, Parkinson GT, Bygrave AM, Halemani N, Baptista M, Milosevic I, Hanley JG
The Journal of cell biology (2017) 21610: 3323-3338. . **ICC, WB; tested species: rat**

Patch2MAP combines patch-clamp electrophysiology with super-resolution structural and protein imaging in identified single neurons without genetic modification.
Vardalaki D, Pham TLD, Frosch MP, Cosgrove GR, Richardson M, Cash SS, Harnett MT
bioRxiv : the preprint server for biology (2023) : . . **EXM; tested species: human**

Harnessing metabolic control for synaptic stability: REST/NRSF links glycolytic inhibition to excitatory neurotransmission.
Ferrante D, Parisi B, Marte A, Marianna D, Prestigio C, Benzi A, Bruzzone S, Benfenati F, Onofri F, Valente P, Baldelli P, et al.
The Journal of physiology (2025) : . . **ICC; tested species: mouse**

A C-terminal motif containing a PKC phosphorylation site regulates γ-Protocadherin-mediated dendrite arborization in the cerebral cortex in vivo.
Hanes CM, Mah KM, Steffen DM, McLeod CM, Marcucci CG, Fuller LC, Burgess RW, Garrett AM, Weiner JA
Developmental neurobiology (2024) : . . **IHC; tested species: mouse**

A dendritic mechanism for balancing synaptic flexibility and stability.
Yaeger CE, Vardalaki D, Zhang Q, Pham TLD, Brown NJ, Ji N, Harnett MT
Cell reports (2024) 438: 114638. . **EXM; tested species: mouse**

Mapping proteomic composition of excitatory postsynaptic sites in the cerebellar cortex.
Robinson K, Delhaye M, Craig AM
Frontiers in molecular neuroscience (2024) 17: 1381534. . **EXM; tested species: mouse**

SNX17 Mediates Dendritic Spine Maturation via p140Cap.
Cui Q, Liang S, Li H, Guo Y, Lv J, Wang X, Qin P, Xu H, Huang TY, Lu Y, Tian Q, et al.
Molecular neurobiology (2023) : . . **WB; tested species: mouse**

CDKL5 deficiency in adult glutamatergic neurons alters synaptic activity and causes spontaneous seizures via TrkB signaling.
Zhu ZA, Li YY, Xu J, Xue H, Feng X, Zhu YC, Xiong ZQ
Cell reports (2023) 4210: 113202. . **WB; tested species: mouse**

Daily Brief Heat Therapy Reduces Seizures in A350V IQSEC2 Mice and Is Associated with Correction of AMPA Receptor-Mediated Synaptic Dysfunction.
Jada R, Borisov V, Laury E, Halpert S, Levy NS, Wagner S, Netser S, Walikonis R, Carmi I, Berlin S, Levy AP, et al.
International journal of molecular sciences (2023) 244: . . **IHC; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/182103 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.