SYSY Antibodies

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GluA1 (AMPA1)

Cat.No. 182 011; Monoclonal mouse antibody, 100 µg purified IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µg purified IgG, lyophilized. Albumin and azide were added for stabilization. For **reconstitution** add 100 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 : 500 up to 1 : 1000 (AP staining) (see remarks) **IP**: yes **ICC**: 1 : 200 **IHC**: 1 : 200 **IHC-P (FFPE)**: 1 : 200 **DNA-PAINT**: external data (see remarks)
Clone	160E5
Subtype	IgG2b (κ light chain)
Immunogen	Synthetic peptide corresponding to C-terminal residues of rat GluA1 (UniProt Id: P19490)
Reactivity	Reacts with: human (P42261), rat (P19490), mouse (P23818). No signal: zebrafish. Other species not tested yet.
Specificity	K.O. validated
Matching control	182-01P
Remarks	**WB**: This antibody is less sensitive than the rabbit polyclonal antibody (cat. no. 182 003). **DNA-PAINT**: 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 (KAR). 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 **GluA1**, GluA2, GluA3, and GluA4.

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

Selected References for 182 011

Fusion Competent Synaptic Vesicles Persist upon Active Zone Disruption and Loss of Vesicle Docking.
Wang SSH, Held RG, Wong MY, Liu C, Karakhanyan A, Kaeser PS
Neuron (2016) 914: 777-791. . **WB, ICC**

Microglia modulate TNFα-mediated synaptic plasticity.
Kleidonas D, Kirsch M, Andrieux G, Pfeifer D, Boerries M, Vlachos A
Glia (2023) 719: 2117-2136. . **WB, IHC; tested species: mouse**

AMPA Receptor Antagonists Facilitate NEDD4-2-Mediated GRIA1 Ubiquitination by Regulating PP2B-ERK1/2-SGK1 Pathway in Chronic Epilepsy Rats.
Kim JE, Lee DS, Park H, Kim TH, Kang TC
Biomedicines (2021) 98: . . **WB, IP; tested species: rat**

EPSILON: a method for pulse-chase labeling to probe synaptic AMPAR exocytosis during memory formation.
Kim D, Park P, Li X, Wong-Campos JD, Tian H, Moult EM, Grimm JB, Lavis LD, Cohen AE
Nature neuroscience (2025) 285: 1099-1107. . **ICC, IHC; tested species: mouse**

Human DDIT4L intron retention contributes to cognitive impairment and amyloid plaque formation.
Li KC, Shi HX, Li Z, You P, Pan J, Cai YC, Li JW, Ma XF, Zhang S, Diao L, Cai B, et al.
Cell discovery (2025) 111: 12. . **WB, IHC; tested species: mouse**

Spatial proteomics in neurons at single-protein resolution.
Unterauer EM, Shetab Boushehri S, Jevdokimenko K, Masullo LA, Ganji M, Sograte-Idrissi S, Kowalewski R, Strauss S, Reinhardt SCM, Perovic A, Marr C, et al.
Cell (2024) 1877: 1785-1800.e16. . **DNA_PAINT; tested species: rat**

A prefrontal cortex-piriform cortex circuit mediates diminished interest.
Xia T, Chen J, Zhang H, Qi Y, Sun N, Huang H, Guo H, Xu M, Jiang Z, Yang J, Qin Y, et al.
Molecular psychiatry (2026) : . . **WB; tested species: mouse**

Neurochemical alterations in the cerebellum of Friedreich's Ataxia mouse models.
Mercado-Ayón E, Talgo E, Flatley L, Coulman J, Lynch DR
Experimental neurology (2025) 386: 115176. . **WB; tested species: mouse**

Maintenance of a central high frequency synapse in the absence of synaptic activity.
Lessle S, Ebbers L, Dörflinger Y, Hoppe S, Kaiser M, Nothwang HG, Körber C
Frontiers in cellular neuroscience (2024) 18: 1404206. . **IHC; tested species: mouse**

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**

SRF-deficient astrocytes provide neuroprotection in mouse models of excitotoxicity and neurodegeneration.
Thumu SCR, Jain M, Soman S, Das S, Verma V, Nandi A, Gutmann DH, Jayaprakash B, Nair D, Clement JP, Marathe S, et al.
eLife (2024) 13: . . **IHC; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/182011 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.