SYSY Antibodies

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GluA (AMPA) extracellular

Cat.No. 182 411C3; Monoclonal mouse antibody, 100 µg purified IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µg purified IgG, lyophilized, fluorescence-labeled with Cyanine 3. Albumin was added for stabilization. For **reconstitution** add 100 µl H_2O to get a 1mg/ml solution in PBS. Either add 1:1 (v/v) glycerol, then aliquot and store at -20°C until use, or store aliquots at -80°C without additives. Reconstitute immediately upon receipt! Avoid bright light when working with the antibody to minimize photo bleeching of the fluorescent dye. For detailed information, see back of the data sheet.
Applications	**WB**: not recommended **IP**: N/A **ICC**: 1 : 100 up to 1 : 500 (see remarks) **IHC**: not tested yet **IHC-P (FFPE)**: not tested yet
Label	Sulfo-Cyanine 3
Clone	248B7
Subtype	IgG2a (κ light chain)
Immunogen	Recombinant protein corresponding to the extracellular amino-terminus of rat GluA2. (UniProt Id: P19491)
Reactivity	Reacts with: rat (P19490, P19491, P19492, P19493), mouse (P23818, P23819, Q9Z2W9, Q9Z2W8). Other species not tested yet.
Specificity	Raised against GluA2 but detects GluA1, 2, and 3 transfected cells with a strong preference for GluA1. Due to sequence homology, it likely crossreacts also to GluA4.
Remarks	**ICC**: This antibody can be used for the surface staining of living cells.

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.

Selected References for 182 411C3

Aberrant neuronal activity-induced signaling and gene expression in a mouse model of RASopathy.
Altmüller F, Pothula S, Annamneedi A, Nakhaei-Rad S, Montenegro-Venegas C, Pina-Fernández E, Marini C, Santos M, Schanze D, Montag D, Ahmadian MR, et al.
PLoS genetics (2017) 133: e1006684. . **ICC; tested species: mouse**

Rasopathy-Associated Mutation Ptpn11D61Y has Age-Dependent Effect on Synaptic Vesicle Recycling.
Guhathakurta D, Selzam F, Petrušková A, Weiss EM, Akdaş EY, Montenegro-Venegas C, Zenker M, Fejtová A
Cellular and molecular neurobiology (2024) 441: 77. . **ICC; tested species: mouse**

CtBP1-Mediated Membrane Fission Contributes to Effective Recycling of Synaptic Vesicles.
Ivanova D, Imig C, Camacho M, Reinhold A, Guhathakurta D, Montenegro-Venegas C, Cousin MA, Gundelfinger ED, Rosenmund C, Cooper B, Fejtova A, et al.
Cell reports (2020) 307: 2444-2459.e7. . **ICC; tested species: mouse**

Riluzole attenuates the efficacy of glutamatergic transmission by interfering with the size of the readily releasable neurotransmitter pool.
Lazarevic V, Yang Y, Ivanova D, Fejtova A, Svenningsson P
Neuropharmacology (2018) : . . **ICC; tested species: rat**

Selected General References

A nomenclature for ligand-gated ion channels.
Collingridge GL et al. Neuropharmacology (2009) PubMed:18655795

Differential regulation of dendrite complexity by AMPA receptor subunits GluR1 and GluR2 in motor neurons.
Prithviraj R et al. Dev Neurobiol (2008) PubMed:18000827

Differential localization of the GluR1 and GluR2 subunits of the AMPA-type glutamate receptor among striatal neuron types in rats.
Deng YP et al. J. Chem. Neuroanat. (2007) PubMed:17446041

Interactions between NEEP21, GRIP1 and GluR2 regulate sorting and recycling of the glutamate receptor subunit GluR2.
Steiner P et al. EMBO J. (2005) PubMed:16037816

Widespread expression of the AMPA receptor GluR2 subunit at glutamatergic synapses in the rat spinal cord and phosphorylation of GluR1 in response to noxious stimulation revealed with an antigen-unmasking method.
Nagy GG et al. J. Neurosci. (2004) PubMed:15215299

Induction of dendritic spines by an extracellular domain of AMPA receptor subunit GluR2.
Passafaro M et al. Nature (2003) PubMed:12904794

The influence of glutamate receptor 2 expression on excitotoxicity in Glur2 null mutant mice.
Iihara K et al. J. Neurosci. (2001) PubMed:11264298

PDZ proteins interacting with C-terminal GluR2/3 are involved in a PKC-dependent regulation of AMPA receptors at hippocampal synapses.
Daw MI et al. Neuron (2000) PubMed:11163273

Access the online factsheet including applicable protocols at https://sysy.com/product/182411C3 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.