SYSY Antibodies

Rudolf-Wissell-Str. 28a
37079 Göttingen, Germany
Phone: +49 551-50556-0
Fax: +49 551-50556-384
E-mail: sales@sysy.com
Web: www.sysy.com

GluA (AMPA) extracellular

Cat.No. 182 411; 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**: not recommended **IP**: yes **ICC**: 1 : 100 up to 1 : 500 (see remarks) **IHC**: not tested yet **IHC-P (FFPE)**: not tested yet
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), human (P42262). 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 182 411

Bioorthogonal labeling of transmembrane proteins with non-canonical amino acids unveils masked epitopes in live neurons.
Bessa-Neto D, Beliu G, Kuhlemann A, Pecoraro V, Doose S, Retailleau N, Chevrier N, Perrais D, Sauer M, Choquet D
Nature communications (2021) 121: 6715. . **UPTAKE; tested species: rat**

An ER Assembly Line of AMPA-Receptors Controls Excitatory Neurotransmission and Its Plasticity.
Schwenk J, Boudkkazi S, Kocylowski MK, Brechet A, Zolles G, Bus T, Costa K, Kollewe A, Jordan J, Bank J, Bildl W, et al.
Neuron (2019) : . . **IP; tested species: mouse**

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**

A correlative workflow for synaptic imaging by cryo-electron tomography.
Do TT, Siegert A, Domart F, Hahn F, Zeising C, Muth S, Pape C, Kusch K, Dresbach T, Rizzoli SO, Petrovic A, et al.
Structure (London, England : 1993) (2026) : . . **ICC; tested species: rat**

High-content image-based pooled screens reveal regulators of synaptogenesis.
Le A, Biederer T, Blainey PC
Cell reports (2025) 447: 115889. . **ICC; tested species: rat**

LRRTM2 controls presynapse nano-organization and AMPA receptor sub-positioning through Neurexin-binding interface.
Liouta K, Lubas M, Venugopal V, Chabbert J, Jeannière C, Diaz C, Munier M, Tessier B, Claverol S, Favereaux A, Sainlos M, et al.
Nature communications (2024) 151: 8807. . **ICC; tested species: mouse**

A Noelin-organized extracellular network of proteins required for constitutive and context-dependent anchoring of AMPA-receptors.
Boudkkazi S, Schwenk J, Nakaya N, Brechet A, Kollewe A, Harada H, Bildl W, Kulik A, Dong L, Sultana A, Zolles G, et al.
Neuron (2023) 11116: 2544-2556.e9. . **IP; tested species: mouse**

miR-124-dependent tagging of synapses by synaptopodin enables input-specific homeostatic plasticity.
Dubes S, Soula A, Benquet S, Tessier B, Poujol C, Favereaux A, Thoumine O, Letellier M
The EMBO journal (2022) : e109012. . **UPTAKE; tested species: rat**

Surfaceome dynamics reveal proteostasis-independent reorganization of neuronal surface proteins during development and synaptic plasticity.
van Oostrum M, Campbell B, Seng C, Müller M, Tom Dieck S, Hammer J, Pedrioli PGA, Földy C, Tyagarajan SK, Wollscheid B
Nature communications (2020) 111: 4990. . **ICC; tested species: rat**

The Role of Agrin, Lrp4 and MuSK during Dendritic Arborization and Synaptogenesis in Cultured Embryonic CNS Neurons.
Handara G, Hetsch FJA, Jüttner R, Schick A, Haupt C, Rathjen FG, Kröger S
Developmental biology (2018) : . . **ICC; tested species: mouse**

Pentraxin 3 regulates synaptic function by inducing AMPA receptor clustering via ECM remodeling and β1-integrin.
Fossati G, Pozzi D, Canzi A, Mirabella F, Valentino S, Morini R, Ghirardini E, Filipello F, Moretti M, Gotti C, Annis DS, et al.
The EMBO journal (2018) : . . **ICC; tested species: mouse**

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