

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 ₂ O 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 IHC: not tested yet IHC-P: 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 **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. 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, Retaillieu 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, Kollewé 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**

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, Kollewé 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**

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

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 our antibodies and control proteins / peptides are shipped lyophilized (vacuum freeze-dried) and are stable in this form 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. **They must not be stored in the freezer when still lyophilized!** Temperatures below zero may cause loss of performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long term storage (several months) may lead to aggregation.
- **Control peptides** should be kept at -20°C before reconstitution.

Long Term Storage after Reconstitution (General Considerations)

- The storage freezer must not be of the frost-free variety ("no-frost freezer"). This cycle between freezing and thawing (to reduce frost-build-up), which is exactly what should be avoided. For the same reason, antibody vials should be placed in an area of the freezer that has minimal temperature fluctuations, for instance towards the back rather than on a door shelf.
- Aliquot the antibody and store frozen (-20°C to -80°C). Avoid very small aliquots (below 20 µl) and use the smallest storage vial or tube possible. The smaller the aliquot, the more the stock concentration is affected by evaporation and adsorption of the antibody to the surface of the storage vial or tube. Adsorption of the antibody to the surface leads to a substantial loss of activity.
- The addition of glycerol to a final concentration of 50% lowers the freezing point of your stock and keeps your antibody at -20°C in liquid state. This efficiently avoids freeze and thaw cycles.

Product Specific Hints for Storage

Control proteins / peptides

- Store at -20°C to -80°C.

Monoclonal Antibodies

- **Ascites** and **hybridoma supernatant** should be stored at -20°C up to -80°C. **Prolonged storage at 4°C is not recommended!** Unlike serum, ascites may contain proteases that will degrade the antibodies.
- **Purified IgG** should be stored at -20°C up to -80°C. Adding a carrier protein like BSA will increase long term stability. Many of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

Polyclonal Antibodies

- **Crude antisera:** With anti-microbials added, they may be stored at 4°C. However, frozen storage (-20°C up to -80°C) is preferable.
- **Affinity purified antibodies:** Less robust than antisera. Storage at -20°C up to -80°C is recommended. Adding a carrier protein like BSA will increase long term stability. Most of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

Fluorescence-labeled Antibodies

- Store as a liquid with 1 : 1 (v/v) glycerol at -20°C. Protect these antibodies from light exposure.

Avoid repeated freeze-thaw cycles for all antibodies!

FAQ - How should I reconstitute my antibody?

Reconstitution

- All our purified antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the amount of deionized water given in the respective datasheet. If higher volumes are preferred, add water as mentioned above and then the desired amount of PBS and a stabilizing carrier protein (e.g. BSA) to a final concentration of 2%. Some of our antibodies already contain albumin. Take this into account when adding more carrier protein. For complete reconstitution, carefully remove the lid. After adding water, briefly vortex the solution. You can spin down the liquid by placing the vial into a 50 ml centrifugation tube filled with paper.
- If desired, add small amounts of azide or thimerosal to prevent microbial growth. This is especially recommended if you want to keep an aliquot at 4°C.
- After reconstitution of fluorescence-labeled antibodies, add 1 : 1 (v/v) glycerol to a final concentration of 50%. This lowers the freezing point of your stock and keeps your antibody in liquid state at -20°C.
- Glycerol may also be added to unlabeled primary antibodies. It is a suitable way to avoid freeze-thaw cycles.
- Please refer to our **tips and hints for subsequent storage** of reconstituted antibodies and control peptides and proteins.