

GluA2 (AMPA2)

Cat.No. 182 111; 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: 1 : 1000 (AP staining) IP: yes ICC: not tested yet IHC: not tested yet IHC-P: not tested yet ExM: external data (see remarks) Clarity: external data (see remarks)
Clone	1404A10
Subtype	IgG2b (κ light chain)
Immunogen	Synthetic peptide corresponding to AA 278 to 292 from rat GluA2 (UniProt Id: P19491)
Reactivity	Reacts with: rat (P19491), mouse (P23819), human (P42262). No signal: zebrafish. Other species not tested yet.
Remarks	IP: Denaturing IP-protocol is recommended. Protein-protein interactions may be affected. ExM: This antibody has been successfully used for the epitope-preserving magnified analysis of the proteome (eMAP) expansion microscopy method (Park et al. 2021. PMID: 34767453). Clarity: This antibody has been successfully used for CLARITY application in human brain (Woelfle et al., 2023; PMID: 37221592).

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 182 111

Synaptotagmin-3 drives AMPA receptor endocytosis, depression of synapse strength, and forgetting. Awasthi A, Ramachandran B, Ahmed S, Benito E, Shinoda Y, Nitzan N, Heukamp A, Rannio S, Martens H, Barth J, Burk K, et al. Science (New York, N.Y.) (2018) : . . **WB, ICC; tested species: rat**

SHANK2 Mutations Result in Dysregulation of the ERK1/2 Pathway in Human Induced Pluripotent Stem Cells-Derived Neurons and Shank2(-/-) Mice. Lutz AK, Pérez Arévalo A, Ioannidis V, Stirmlinger N, Demestre M, Delorme R, Bourgeron T, Boeckers TM. Frontiers in molecular neuroscience (2021) 14: 773571. . **WB, ICC; tested species: human**

Combined expansion and STED microscopy reveals altered fingerprints of postsynaptic nanostructure across brain regions in ASD-related SHANK3-deficiency. Delling JP, Bauer HF, Gerlach-Arbeiter S, Schön M, Jacob C, Wagner J, Pedro MT, Knöll B, Boeckers TM. Molecular psychiatry (2024) 2910: 2997-3009. . **EXM; tested species: human,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**

Computerized EEG in the comparison of oxyprothepin and fluphenazine decanoate. Misurec J, Náhunek K, Svestka J, Cesková E. Activitas nervosa superior (1979) 213: 140. . **CLARITY; tested species: human**

INSIGHT: 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**

Expression profiles of the autism-related SHANK proteins in the human brain. Woelfle S, Pedro MT, Wagner J, Schön M, Boeckers TM. BMC biology (2023) 211: 254. . **CLARITY; tested species: human**

Heterogeneity of Cell Surface Glutamate and GABA Receptor Expression in Shank and CNTN4 Autism Mouse Models. Heise C, Preuss JM, Schroeder JC, Battaglia CR, Kolibius J, Schmid R, Kreutz MR, Kas MJH, Burbach JPH, Boeckers TM. Frontiers in molecular neuroscience (2018) 11: 212. . **WB; tested species: mouse**

Neuroigin-1 regulates excitatory synaptic transmission, LTP and EPSP-spike coupling in the dentate gyrus in vivo. Jedlicka P, Vnencak M, Krueger DD, Jungenitz T, Brose N, Schwarzacher SW. Brain structure & function (2015) 2201: 47-58. . **WB**

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/182111> 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.