

## GluA1

Cat.No. 182-0P; control protein, 100 µg protein (lyophilized)

### Data Sheet

Reconstitution/ Storage	100 µg protein, lyophilized. For <b>reconstitution</b> add 100 µl H <sub>2</sub> O to get a 1mg/ml solution in TBS. Then aliquot and store at -20°C to -80°C until use. Control proteins should be stored at +4°C when still lyophilized. Do not freeze! For detailed information, see back of the data sheet.
Immunogen	Recombinant protein corresponding to AA 829 to 907 from mouse GluA1 (UniProt Id: P23818)
Recommended dilution	Optimal concentrations should be determined by the end-user.
Matching antibodies	182 003
Remarks	This control protein consists of the recombinant protein (aa 828 - 906 of mouse GluA 1) that has been used for immunization. It has been tested in preadsorption experiments and blocks efficiently and specifically the corresponding signal in Western blots. The amount of protein needed for efficient blocking depends on the titer and on the affinity of the antibody to the antigen.

**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 General References

- A nomenclature for ligand-gated ion channels.  
Collingridge GL, Olsen RW, Peters J, Spedding M  
*Neuropharmacology* (2009) 561: 2-5. .
- Differential regulation of dendrite complexity by AMPA receptor subunits GluR1 and GluR2 in motor neurons.  
Prithviraj R, Kelly KM, Espinoza-Lewis R, Hexom T, Clark AB, Inglis FM  
*Developmental neurobiology* (2008) 682: 247-64. .
- Influence of environmental enrichment on steady-state mRNA levels for EAAC1, AMPA1 and NMDA2A receptor subunits in rat hippocampus.  
Andin J, Hallbeck M, Mohammed AH, Marcusson J  
*Brain research* (2007) 1174: 18-27. .
- Identification and characterization of a novel phosphorylation site on the GluR1 subunit of AMPA receptors.  
Lee HK, Takamiya K, Kameyama K, He K, Yu S, Rossetti L, Wilen D, Huganir RL  
*Molecular and cellular neurosciences* (2007) 361: 86-94. .
- Receptor occupancy and channel-opening kinetics: a study of GLUR1 L497Y AMPA receptor.  
Pei W, Ritz M, McCarthy M, Huang Z, Niu L  
*The Journal of biological chemistry* (2007) 28231: 22731-6. .
- Differential localization of the GluR1 and GluR2 subunits of the AMPA-type glutamate receptor among striatal neuron types in rats.  
Deng YP, Xie JP, Wang HB, Lei WL, Chen Q, Reiner A  
*Journal of chemical neuroanatomy* (2007) 334: 167-92. .
- 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, Al-Ayyan M, Andrew D, Fukaya M, Watanabe M, Todd AJ  
*The Journal of neuroscience : the official journal of the Society for Neuroscience* (2004) 2425: 5766-77. .
- Phosphorylation of the AMPA receptor GluR1 subunit is required for synaptic plasticity and retention of spatial memory.  
Lee HK, Takamiya K, Han JS, Man H, Kim CH, Rumbaugh G, Yu S, Ding L, He C, Petralia RS, Wenthold RJ, et al.  
*Cell* (2003) 1125: 631-43. .
- NMDA induces long-term synaptic depression and dephosphorylation of the GluR1 subunit of AMPA receptors in hippocampus.  
Lee HK, Kameyama K, Huganir RL, Bear MF  
*Neuron* (1998) 215: 1151-62. .
- Differential expression of glutamate receptor genes (GluR1-5) in the rat retina.  
Hughes TE, Hermans-Borgmeyer I, Heinemann S  
*Visual neuroscience* (1992) 81: 49-55. .
- The characterization and localization of the glutamate receptor subunit GluR1 in the rat brain.  
Rogers SW, Hughes TE, Hollmann M, Gasic GP, Deneris ES, Heinemann S  
*The Journal of neuroscience : the official journal of the Society for Neuroscience* (1991) 119: 2713-24. .

Access the online factsheet including applicable protocols at <https://sysy.com/product/182-0P> 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 a 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.