

GluN1

Cat.No. 114 011; 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 up to 1 : 10000 (AP staining) IP: yes (see remarks) ICC: 1 : 1000 (see remarks) IHC: 1 : 500 (see remarks) IHC_P: 1 : 1000 (see remarks) EXM: 1 : 250 (see remarks) ELISA: yes (see remarks)
Clone	M68
Subtype	IgG2b (κ light chain)
Immunogen	Recombinant protein corresponding to AA 660 to 811 from rat GluN1 (UniProt Id: P35439)
Reactivity	Reacts with: human (Q05586), rat (P35439), mouse (P35438), zebrafish. Other species not tested yet.
Specificity	K.O. PubMed: 24344200
Remarks	This antibody is suitable for the surface staining of living cells. After washing cells with bound antibodies, they can be fixed and visualized with secondary reagents. IP: For most effective IP, use the denaturing IP-protocol. Consider that protein-protein interactions may be affected. ICC: Methanol fixation is recommended. IHC: Heat mediated antigen retrieval (AGR) at pH 6,0 is recommended. IHC_P: Requires heat mediated antigen retrieval at pH 9.0 for 30min at 97°C. EXM: This antibody has been successfully used for the magnified analysis of the proteome (MAP) expansion microscopy method (MAP; Ku et al. 2016. Nature Biotechnology 34:973-981). 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). ELISA: Suitable as capture antibody for sandwich-ELISA with cat. no. 114 003 as detector antibody. The ELISA-protocol for membrane proteins is recommended.

Background

GluNs (NMDA-receptors) represent a class of glutamate receptors that are of central importance in synaptic plasticity. Multiple NMDA receptor subtypes exist: **GluN 1** and GluN 2 A-D. GluN 1 is the most important as it is required for activity. NMDA-receptors allow Ca²⁺ influx and are thought to trigger Ca²⁺ dependent postsynaptic processes involved in long term potentiation and depression.

Selected References for 114 011

Involvement of myosin Vb in glutamate receptor trafficking.
Lisé MF, Wong TP, Trinh A, Hines RM, Liu L, Kang R, Hines DJ, Lu J, Goldenring JR, Wang YT, El-Husseini A, et al.
The Journal of biological chemistry (2006) 281: 3669-78. . **WB, ICC**

Anti-NMDA Receptor Encephalitis in the Polar Bear (Ursus maritimus) Knut.
Prüss H, Leubner J, Wenke NK, Cziráj GÁ, Szentiks CA, Greenwood AD
Scientific reports (2015) 5: 12805. . **ICC, IHC**

Neurons undergo pathogenic metabolic reprogramming in models of familial ALS.
Riechers SP, Mojsilovic-Petrovic J, Belton TB, Chakrabarty RP, Garjani M, Medvedeva V, Dalton C, Wong YC, Chandel NS, Dienel G, Kalb RG, et al.
Molecular metabolism (2022) 60: 101468. . **WB, ICC; tested species: rat**

Glutamatergic receptor expression changes in the Alzheimer's disease hippocampus and entorhinal cortex.
Yeung JHY, Walby JL, Palpagama TH, Turner C, Waldvogel HJ, Faulk RLM, Kwakowsky A
Brain pathology (Zurich, Switzerland) (2021) 316: e13005. . **WB, IHC; tested species: human**

BDNF-induced local translation of GluA1 is regulated by HNRNP A2/B1.
Jung Y, Seo JY, Ryu HG, Kim DY, Lee KH, Kim KT
Science advances (2020) 647: . . **WB, ICC; tested species: mouse**

Chronic Stress Triggers Expression of Immediate Early Genes and Differentially Affects the Expression of AMPA and NMDA Subunits in Dorsal and Ventral Hippocampus of Rats.
Pacheco A, Aguayo FI, Aliaga E, Muñoz M, García-Rojo G, Olave FA, Parra-Fiedler NA, García-Pérez A, Tejos-Bravo M, Rojas PS, Parra CS, et al.
Frontiers in molecular neuroscience (2017) 10: 244. . **WB, IHC; tested species: rat**

Fusion Competent Synaptic Vesicles Persist upon Active Zone Disruption and Loss of Vesicle Docking.
Wang SSH, Held RG, Wong MY, Liu C, Karakhanyan A, Kaeser PS
Neuron (2016) 914: 777-791. . **WB, ICC**

Synapsin-dependent reserve pool of synaptic vesicles supports replenishment of the readily releasable pool under intense synaptic transmission.
Vasileva M, Horstmann H, Geumann C, Gitler D, Kuner T
The European journal of neuroscience (2012) 368: 3005-20. . **ELISA**

The role of N-methyl-D-aspartate receptor subunits in the rat thalamic mediodorsal nucleus during central sensitization.
Kaneko M, Kaneko T, Kaneko R, Chokechanachaisakul U, Kawamura J, Sunakawa M, Okiji T, Suda H
Brain research (2011) 1371: 16-22. . **IHC-P; tested species: rat**

Sustained calcium signalling and caspase-3 activation involve NMDA receptors in thymocytes in contact with dendritic cells.
Affaticati P, Mignen O, Jambou F, Potier MC, Klingel-Schmitt I, Degrouard J, Peineau S, Gouadon E, Collingridge GL, Liblau R, Capiod T, et al.
Cell death and differentiation (2011) 181: 99-108. . **FACS**

CDKL5 deficiency in adult glutamatergic neurons alters synaptic activity and causes spontaneous seizures via TrkB signaling.
Zhu ZA, Li YY, Xu J, Xue H, Feng X, Zhu YC, Xiong ZQ
Cell reports (2023) 4210: 113202. . **WB; tested species: mouse**

Astrocytes Derived from Familial and Sporadic Alzheimer's Disease iPSCs Show Altered Calcium Signaling and Respond Differently to Misfolded Protein Tau.
Brezovakova V, Sykova E, Jadhav S
Cells (2022) 119: . . **WB; tested species: human**

TO BE USED IN VITRO / FOR RESEARCH ONLY
NOT TOXIC, NOT HAZARDOUS, NOT INFECTIOUS, NOT CONTAGIOUS

Access the online factsheet including applicable protocols
at <https://sysy.com/product/114011> 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.