SYSY Antibodies

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GluN1 (NMDAR1) extracellular

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_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**: 1 : 1000 up to 1 : 10000 (AP staining) **IP**: yes (see remarks) **ICC**: 1 : 1000 (see remarks) **IHC**: 1 : 500 (see remarks) **IHC-P (FFPE)**: 1 : 1000 (see remarks) **IHC-G**: 1 : 500 (see remarks) **ExM**: external data (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. validated PubMed: 24344200
Remarks	**IP**: Denaturing IP-protocol is recommended. Protein-protein interactions may be affected. **ICC**: Methanol fixation is recommended. This antibody can be used for the surface staining of living cells. **IHC**: Antigen retrieval with citrate buffer pH 6 is required. **IHC-P (FFPE)**: Antigen retrieval with Tris-EDTA buffer pH 9 is recommended for fluorescent detection. **IHC-G**: 9% glyoxal fixation is recommended. **ExM**: This antibody has been successfully applied and published for this method by customers (see application-specific references). **ELISA**: The ELISA-protocol for membrane proteins is required. Suitable as capture antibody for sandwich-ELISA. Please refer to the protocol for suitable detector antibodies.

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

Background

GluNs (NMDA-receptors) represent a class of glutamate receptors that are of central importance in synaptic plasticity. Multiple NMDA receptor subtypes exist: **GluN1** and GluN2 A-D. GluN1 is the most important as it is required for activity. NMDA-receptors allow Ca^{2+} influx and are thought to trigger Ca^{2+} dependent postsynaptic processes involved in long term potentiation and depression.

Selected References for 114 011

Chaihu Guizhi Decoction prevents cognitive, memory impairments and sensorimotor gating deficit induced by N-methyl-d-aspartate receptor antibody in mice.
Zhu X, Huang Y, Qiu J, Zhong Z, Peng Y, Liang X, Chen J, Zhou J, Liang X, Wang H, Xie W, et al.
Journal of ethnopharmacology (2025) 337Pt 1: 118806. . **WB, ICC, IHC; tested species: mouse**

Rewired m6A of promoter antisense RNAs in Alzheimer's disease regulates neuronal genes in 3D nucleome.
Hu B, Shi Y, Xiong F, Chen YT, Zhu X, Carrillo E, Wen X, Drolet N, Rajpurohit CS, Xu X, Lee DF, et al.
Nature communications (2025) 161: 5251. . **WB, ICC; tested species: human**

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, Faull 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**

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

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) 2816: 3669-78. . **WB, ICC**

Mapping proteomic composition of excitatory postsynaptic sites in the cerebellar cortex.
Robinson K, Delhaye M, Craig AM
Frontiers in molecular neuroscience (2024) 17: 1381534. . **EXM; tested species: mouse**

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**

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**

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 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.