

GluN1 (NMDAR1)

Cat.No. 114 103; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Albumin and azide were added for stabilization. For reconstitution add 50 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 (see remarks) IP: not tested yet ICC: 1 : 250 up to 1 : 500 (see remarks) IHC: external data (see remarks) IHC-P: not tested yet IHC-G: 1 : 500 (see remarks)
Immunogen	Synthetic peptide corresponding to AA 35 to 53 from rat GluN1 (UniProt Id: P35439)
Reactivity	Reacts with: human (Q05586), rat (P35439), mouse (P35438). Other species not tested yet.
Matching control	114-0P
Remarks	WB: Cat. no. 114 003 , is recommended for this application. ICC: This antibody can only be used for the surface staining of living cells. It is not recommended for the labeling of fixed cells. IHC: This antibody has been successfully applied for this method by our customers using antigen retrieval with pepsin according to Lorincz and Nusser 2010 (see gallery). It has not been validated using our standard protocol. IHC-G: 3% glyoxal, 1% acetic acid, 20% ethanol, in ddH ₂ O, pH 4.2-4.4, according to Richter et al. 2017 and 9% glyoxal, 8% acetic acid, in ddH ₂ O, pH 4.2-4.4, according to Konno et al. 2023 are possible.

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 Ca²⁺ influx and are thought to trigger Ca²⁺ dependent postsynaptic processes involved in long term potentiation and depression.

Selected References for 114 103

Peptide-Purified Anti-N-methyl-D-aspartate Receptor (NMDAR) Autoantibodies Have Inhibitory Effect on Long-Term Synaptic Plasticity.

Day C, Silva JP, Munro R, Mullier B, André VM, Wolff C, Stephens GJ, Bithell A
Pharmaceuticals (Basel, Switzerland) (2024) 1712: . . **WB, ICC; tested species: human,mouse**

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. . **IHC**

Alzheimer's disease patient-derived high-molecular-weight tau impairs bursting in hippocampal neurons.

Harris SS, Ellingford R, Hartmann J, Dasgupta D, Kehring M, Rajani RM, Graykowski D, Quittot N, Sivasankaran D, Commins C, Fan Z, et al.
Cell (2025) : . . **IHC; tested species: mouse**

The amyloid precursor family of proteins in excitatory neurons are essential for regulating cortico-hippocampal circuit dynamics in vivo.

Harris SS, Rajani RM, Zünkler J, Ellingford R, Yang M, Rowland JM, Schmidt A, Lee BI, Kehring M, Hellmuth M, Lam FKW, et al.
Cell reports (2025) 446: 115801. . **IHC; tested species: mouse**

Disruption of the grid cell network in a mouse model of early Alzheimer's disease.

Ying J, Keinath AT, Lavoie R, Vigneault E, El Mestikawy S, Brandon MP
Nature communications (2022) 131: 886. . **IHC; tested species: mouse**

Human cerebrospinal fluid monoclonal N-methyl-D-aspartate receptor autoantibodies are sufficient for encephalitis pathogenesis.

Kreye J, Wenke NK, Chayka M, Leubner J, Murugan R, Maier N, Jurek B, Ly LT, Brandl D, Rost BR, Stumpf A, et al.
Brain : a journal of neurology (2016) 139Pt 10: 2641-2652. . **ICC; tested species: mouse,rat**

Activity-dependent regulation of MHC class I expression in the developing primary visual cortex of the common marmoset monkey.

Ribic A, Flügge G, Schlumbohm C, Mätz-Rensing K, Walter L, Fuchs E
Behavioral and brain functions : BBF (2011) 7: 1. . **IHC**

Selected General References

AMPA and NMDA receptors: similarities and differences in their synaptic distribution.

Nusser Z et al. Curr. Opin. Neurobiol. (2000) PubMed:10851167

A nomenclature for ligand-gated ion channels.

Collingridge GL et al. Neuropharmacology (2009) PubMed:18655795

Differential assembly of coexpressed glutamate receptor subunits in neurons of rat cerebral cortex.

Brose N et al. J. Biol. Chem. (1994) PubMed:8207001

Molecular cloning and characterization of the rat NMDA receptor.

Moriyoshi K et al. Nature (1991) PubMed:1834949

Access the online factsheet including applicable protocols at <https://sysy.com/product/114103> 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.