SYSY Antibodies

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GluN2A/B (NMDAR2A/B)

Cat.No. 244 003; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Albumin was added for stabilization. For **reconstitution** add 50 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 (AP staining) **IP**: yes (see remarks) **ICC**: 1 : 250 **IHC**: external data (see remarks) **IHC-P (FFPE)**: not tested yet
Immunogen	Synthetic peptide corresponding to AA 1448 to 1464 from mouse GluN2A (UniProt Id: P35436)
Reactivity	Reacts with: rat (Q00959, Q00960), mouse (P35436, Q01097). Other species not tested yet.
Specificity	Cross-reacts to GluN 2B due to sequence homology.
Matching control	244-0P
Remarks	**IP**: Denaturing IP-protocol is recommended. Protein-protein interactions may be affected. **IHC**: This antibody has been successfully applied and published for this method by customers (see application-specific references). It has not been validated using our standard protocols.

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 244 003

Novel application of stem cell-derived neurons to evaluate the time- and dose-dependent progression of excitotoxic injury.
Gut IM, Beske PH, Hubbard KS, Lyman ME, Hamilton TA, McNutt PM
PloS one (2013) 85: e64423. . **WB, ICC; tested species: mouse**

INSIHGT: 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**

Astrocyte GluN2C NMDA receptors control basal synaptic strengths of hippocampal CA1 pyramidal neurons in the stratum radiatum.
Chipman PH, Fung CCA, Pazo Fernandez A, Sawant A, Tedoldi A, Kawai A, Ghimire Gautam S, Kurosawa M, Abe M, Sakimura K, Fukai T, et al.
eLife (2021) 10: . . **WB; tested species: mouse**

Selected General References

NMDA receptor surface mobility depends on NR2A-2B subunits.
Groc L et al. Proc. Natl. Acad. Sci. U.S.A. (2006) PubMed:17124177

Synaptic distribution of the NR1, NR2A and NR2B subunits of the N-methyl-d-aspartate receptor in the rat lumbar spinal cord revealed with an antigen-unmasking technique.
Nagy GG et al. Eur. J. Neurosci. (2004) PubMed:15610162

NMDA receptors and PSD-95 are found in attachment plaques in cerebellar granular layer glomeruli.
Petralia RS et al. Eur. J. Neurosci. (2002) PubMed:11876787

A developmental change in NMDA receptor-associated proteins at hippocampal synapses.
Sans N et al. J. Neurosci. (2000) PubMed:10648730

Neuronal and glial localization of NR1 and NR2A/B subunits of the NMDA receptor in the human cerebral cortex.
Conti F et al. Cereb. Cortex (1999) PubMed:10220224

The NMDA receptor subunits NR2A and NR2B show histological and ultrastructural localization patterns similar to those of NR1.
Petralia RS et al. J. Neurosci. (1994) PubMed:7931566

Heteromeric NMDA receptors: molecular and functional distinction of subtypes.
Monyer H et al. Science (1992) PubMed:1350383

Access the online factsheet including applicable protocols at https://sysy.com/product/244003 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.