SYSY Antibodies

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Neurobeachin (NBEA)

Cat.No. 194 003; 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_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) (see remarks) **IP**: yes **ICC**: 1 : 1000 **IHC**: 1 : 500 **IHC-P (FFPE)**: not tested yet **EM**: external data (see remarks)
Immunogen	Recombinant protein corresponding to residues near the central region of mouse Neurobeachin (UniProt Id: Q9EPN1)
Reactivity	Reacts with: rat (A0A8I6AB61), mouse (Q9EPN1). Other species not tested yet.
Remarks	**WB**: To avoid protein aggregation, do not heat samples for SDS-PAGE. Due to the large size of this protein, we recommend NuPAGE 3-8% Tris-Acetate gels for SDS-PAGE. **EM**: This antibody has been successfully applied and published for this method by customers (see application-specific references).

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

Background

Neurobeachin, also referred to as **NBEA**, is a large ~330 kDa brain-specific protein that belongs to the BEACH (**be**ige **a**nd **Ch**ediak-Higashi) family. The protein has been shown to locate to tubulovesicular neuronal endomembranes near the trans-Golgi synapses, but also throughout the cell. Neurobeachin binds to protein kinase A and after adding GTPγS concentrates at Golgi-near membranes.

For more information on protein expression pattern, please refer to the overview image in our SYSY Antibodies ATLAS.

Selected References for 194 003

Neurobeachin: A protein kinase A-anchoring, beige/Chediak-higashi protein homolog implicated in neuronal membrane traffic.
Wang X, Herberg FW, Laue MM, Wullner C, Hu B, Petrasch-Parwez E, Kilimann MW
The Journal of neuroscience : the official journal of the Society for Neuroscience (2000) 2023: 8551-65. . **WB, ICC, IHC, EM; tested species: rat**

Synapse associated protein 102 (SAP102) binds the C-terminal part of the scaffolding protein neurobeachin.
Lauks J, Klemmer P, Farzana F, Karupothula R, Zalm R, Cooke NE, Li KW, Smit AB, Toonen R, Verhage M
PloS one (2012) 76: e39420. . **WB, IP, ICC**

Neurobeachin and the Kinesin KIF21B Are Critical for Endocytic Recycling of NMDA Receptors and Regulate Social Behavior.
Gromova KV, Muhia M, Rothammer N, Gee CE, Thies E, Schaefer I, Kress S, Kilimann MW, Shevchuk O, Oertner TG, Kneussel M, et al.
Cell reports (2018) 239: 2705-2717. . **WB, ICC, IHC**

Dendritic spine formation and synaptic function require neurobeachin.
Niesmann K, Breuer D, Brockhaus J, Born G, Wolff I, Reissner C, Kilimann MW, Rohlmann A, Missler M
Nature communications (2011) 2: 557. . **WB, ICC, IHC**

Neurobeachin Regulates Glutamate- and GABA-Receptor Targeting to Synapses via Distinct Pathways.
Farzana F, Zalm R, Chen N, Li KW, Grant SG, Smit AB, Toonen RF, Verhage M
Molecular neurobiology (2016) 534: 2112-23. . **WB, ICC**

Neurobeachin regulates neurotransmitter receptor trafficking to synapses.
Nair R, Lauks J, Jung S, Cooke NE, de Wit H, Brose N, Kilimann MW, Verhage M, Rhee J
The Journal of cell biology (2013) 2001: 61-80. . **WB, ICC**

Protocol for SUM-PAINT spatial proteomic imaging generating neuronal architecture maps in rat hippocampal neurons.
Unterauer EM, Schentarra EM, Jevdokimenko K, Boushehri SS, Marr C, Opazo F, Fornasiero EF, Jungmann R
STAR protocols (2025) 61: 103637. . **DNA_PAINT; tested species: rat**

The STEP61 interactome reveals subunit-specific AMPA receptor binding and synaptic regulation.
Won S, Incontro S, Li Y, Nicoll RA, Roche KW
Proceedings of the National Academy of Sciences of the United States of America (2019) : . . **WB; tested species: mouse**

The trafficking proteins Vacuolar Protein Sorting 35 and Neurobeachin interact with the glycine receptor β-subunit.
del Pino I, Paarmann I, Karas M, Kilimann MW, Betz H
Biochemical and biophysical research communications (2011) 4123: 435-40. . **ICC**

Selected General References

Neurobeachin is essential for neuromuscular synaptic transmission.
Su Y et al. J. Neurosci. (2004) PubMed:15071111

Neurobeachin: A protein kinase A-anchoring, beige/Chediak-higashi protein homolog implicated in neuronal membrane traffic.
Wang X et al. J. Neurosci. (2000) PubMed:11102458

Access the online factsheet including applicable protocols at https://sysy.com/product/194003 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.