SYSY Antibodies

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Neurobeachin

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**: 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 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 a 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.