SYSY Antibodies

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Neurofilament H

Cat.No. 171 108; Recombinant rabbit antibody, 50 µg recombinant IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg purified recombinant IgG, lyophilized. 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**: not recommended **IP**: not tested yet **ICC**: 1 : 500 up to 1 : 1000 **IHC**: 1 : 500 up to 1 : 1000 **IHC-P**: 1 : 1000 up to 1 : 2000
Clone	Rb3A2D1
Subtype	IgG1 (κ light chain)
Immunogen	Recombinant protein corresponding to residues near the carboxy terminus of mouse Neurofilament H (UniProt Id: P19246)
Reactivity	Reacts with: mouse (P19246), rat (P16884). Other species not tested yet.
Remarks	This antibody is a chimeric antibody based on the monoclonal mouse antibody clone 3A2D1. The constant regions of the heavy and light chains have been replaced by rabbit specific sequences. Therefore, the antibody can be used with standard anti-rabbit secondary reagents. The antibody has been expressed in mammalian cells.

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

Background

Neurofilaments (NFs) are intermediate filaments essential for providing structural support to neurons, particularly within axons. They play a crucial role in maintaining axonal diameter, which directly influences nerve conduction velocity (1). Neurofilaments are composed of three primary subunits - NF-L (light), NF-M (medium) and NF-H (heavy) – along with an NF-associated protein. In the adult central nervous system (CNS), α-internexin serves as the fourth neurofilament subunit, whereas in the peripheral nervous system (PNS), peripherin takes on this role (2).
Beyond their structural function, neurofilaments are also valuable biomarkers in both research and clinical settings. They are widely used in immunohistochemistry to stain and visualize axons, particularly in peripheral nerves and the CNS. Increased levels of neurofilament proteins in cerebrospinal fluid (CSF) or blood are strongly associated with neurodegenerative diseases, such as amyotrophic lateral sclerosis (ALS), multiple sclerosis (MS), and Alzheimer's disease (3). In peripheral nerve studies, neurofilament staining is often combined with other markers, such as S100, to provide a more comprehensive assessment of nerve structure and pathology (4).

Selected General References

Neurofilament-dependent radial growth of motor axons and axonal organization of neurofilaments does not require the neurofilament heavy subunit (NF-H) or its phosphorylation.
Rao MV et al. J Cell Biol (1998) PubMed:9763429

The Role of Nerve Fibers in the Tumor Immune Microenvironment of Solid Tumors.
Hernandez S et al. Adv Biol (Weinh) (2022) PubMed:35751462

Neurofilament Proteins as Biomarkers to Monitor Neurological Diseases and the Efficacy of Therapies.
Yuan A et al. Front Neurosci (2021) PubMed:34646114

Neurofilaments: neurobiological foundations for biomarker applications.
Gafson AR et al. Brain (2020) PubMed:32408345

Access the online factsheet including applicable protocols at https://sysy.com/product/171108 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.