SYSY Antibodies

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Neurofilament L

Cat.No. 171 002; Polyclonal rabbit antibody, 200 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	200 µl antiserum, lyophilized. For **reconstitution** add 200 µl H_2O, then aliquot and store at -20°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 **ICC**: 1 : 500 **IHC**: 1 : 200 **IHC-P**: 1 : 200 **iDISCO**: 1 : 100
Immunogen	with AA 200-292 missing. Immunogen corresponds to AA 1 to 284 in AAH66952.1 (UniProt Id: P07196)
Reactivity	Reacts with: human (P07196), rat (P19527), mouse (P08551). Other species not tested yet.

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 References for 171 002

Conditional deletion of L1CAM in human neurons impairs both axonal and dendritic arborization and action potential generation.
Patzke C, Acuna C, Giam LR, Wernig M, Südhof TC
The Journal of experimental medicine (2016) 2134: 499-515. . **WB, ICC; tested species: mouse**

Regulatory Function of Sympathetic Innervation on the Endo/Lysosomal Trafficking of Acetylcholine Receptor.
Straka T, Schröder C, Roos A, Kollipara L, Sickmann A, Williams MPI, Hafner M, Khan MM, Rudolf R
Frontiers in physiology (2021) 12: 626707. . **IHC, IDISCO; tested species: mouse**

Impaired Neurofilament Integrity and Neuronal Morphology in Different Models of Focal Cerebral Ischemia and Human Stroke Tissue.
Mages B, Aleithe S, Altmann S, Blietz A, Nitzsche B, Barthel H, Horn AKE, Hobusch C, Härtig W, Krueger M, Michalski D, et al.
Frontiers in cellular neuroscience (2018) 12: 161. . **WB, IHC; tested species: human,mouse,rat**

Gene Dosage Dependent Aggravation of the Neurological Phenotype in the 5XFAD Mouse Model of Alzheimer's Disease.
Richard BC, Kurdakova A, Baches S, Bayer TA, Weggen S, Wirths O
Journal of Alzheimer's disease : JAD (2015) 454: 1223-36. . **IHC-P**

Clinical phenotypes of Alzheimer's disease: investigating atrophy patterns and their pathological correlates.
Reijner N, Frigerio I, Bouwman MMA, Boon BDC, Guizard N, Jubault T, Hoozemans JJM, Rozemuller AJM, Bouwman FH, Barkhof F, Gordon E, et al.
Alzheimer's research & therapy (2025) 171: 93. . **IHC-P; tested species: human**

Combination of tauroursodeoxycholic acid, co-enzyme Q10 and creatine demonstrates additive neuroprotective effects in in-vitro models of Parkinson's disease.
Shtilbans A, Reintsch WE, Piscopo VEC, Krahn AI, Durcan TM
Frontiers in neuroscience (2024) 18: 1492028. . **ICC; tested species: human**

Multimodal Hox5 activity generates motor neuron diversity.
Kc R, López de Boer R, Lin M, Vagnozzi AN, Jeannotte L, Philippidou P
Communications biology (2024) 71: 1166. . **IHC; tested species: mouse**

Dipeptidyl peptidase 4 deficiency improves survival after focal cerebral ischemia in mice and ameliorates microglia activation and specific inflammatory markers.
Höfling C, Donkersloot P, Ulrich L, Burghardt S, Opitz M, Geissler S, Schilling S, Cynis H, Michalski D, Roßner S
Neurobiology of disease (2024) 201: 106671. . **IHC; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/171002 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.