

p-NF-H (NF-01): sc-51682

BACKGROUND

Neurofilament-H (for neurofilament heavy polypeptide, or NF-H), a member of the intermediate filament family, is a major component of neuronal cytoskeletons. Neurofilaments are dynamic structures; they contain phosphorylation sites for a large number of protein kinases, including protein kinase A, protein kinase C, cyclin-dependent kinase 5, extracellular signal regulated kinase, glycogen synthase kinase-3, and stress-activated protein kinase γ . In addition to their role in the control of axon caliber, neurofilaments may affect other cytoskeletal elements, such as microtubules and Actin filaments. Changes in neurofilament phosphorylation or metabolism are frequently observed in neurodegenerative diseases, including amotrophic lateral sclerosis (ALS), Parkinson's disease, and Alzheimer's disease.

REFERENCES

- Mattei, M.G., et al. 1988. The gene encoding the large human neurofilament subunit (NF-H) maps to the q121-q131 region on human chromosome 22. *Hum. Genet.* 80: 293-295.
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- Sihag, R.K., et al. 1989. *In vivo* phosphorylation of distinct domains of the 70 kDa neurofilament subunit involves different protein kinases. *J. Biol. Chem.* 264: 457-464.
- Hisanaga, S., et al. 1990. Effects of phosphorylation of the neurofilament L protein on filamentous structures. *Cell Regul.* 1: 237-248.
- Gonda, Y., et al. 1990. Involvement of protein kinase C in the regulation of assembly/disassembly of neurofilaments *in vitro*. *Biochem. Biophys. Res. Commun.* 167: 1316-1325.
- Lukas, Z., et al. 1993. Expression of phosphorylated high molecular weight neurofilament protein (NF-H) and Vimentin in human developing dorsal root ganglia and spinal cord. *Histochemistry* 100: 495-502.
- Nakamura, Y., et al. 1997. Abnormal distribution of neurofilament L in neurons with Alzheimer's disease. *Neurosci. Lett.* 225: 201-204.
- Nakamura, Y., et al. 1999. Casein kinase II is responsible for phosphorylation of NF-L at Ser 473. *FEBS Lett.* 455: 83-86.

CHROMOSOMAL LOCATION

Genetic locus: NEFH (human) mapping to 22q12.2; Nefh (mouse) mapping to 11 A1.

SOURCE

p-NF-H (NF-01) is a mouse monoclonal antibody raised against brain tissue homogenate of porcine origin.

PRODUCT

Each vial contains 100 μ g IgG₁ in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

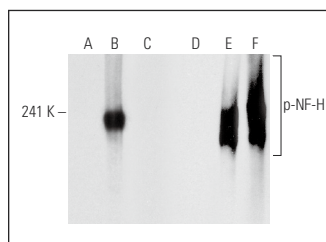
p-NF-H (NF-01) is recommended for detection of a phosphorylated epitope on heavy neurofilament of mouse, rat, human and porcine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for NF-H siRNA (h): sc-42068, NF-H siRNA (m): sc-42069, NF-H shRNA Plasmid (h): sc-42068-SH, NF-H shRNA Plasmid (m): sc-42069-SH, NF-H shRNA (h) Lentiviral Particles: sc-42068-V and NF-H shRNA (m) Lentiviral Particles: sc-42069-V.

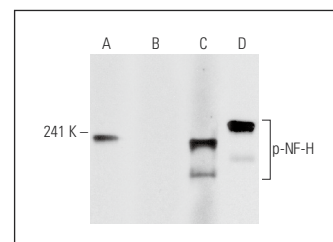
Molecular Weight of p-NF-H: 200 kDa.

Positive Controls: mouse cerebellum extract: sc-2403, rat brain extract: sc-2392 or mouse brain extract: sc-2253.

DATA



Western blot analysis of NF-H phosphorylation in non-transfected: sc-117752 (A,D), untreated human NF-H transfected: sc-111457 (B,E) and lambda protein phosphatase (sc-200312A) treated human NF-H transfected: sc-111457 (C,F) 293T whole cell lysates. Antibodies tested include p-NF-H (NF-01): sc-51682 (A,B,C) and NF-H (2D2): sc-20014 (D,E,F).



Western blot analysis of NF-H phosphorylation in untreated (A,C) and lambda protein phosphatase (sc-200312A) treated (B,D) rat brain tissue extracts. Antibodies tested include p-NF-H (NF-01): sc-51682 (A,B) and NF-H (2D2): sc-20014 (C,D).

SELECT PRODUCT CITATIONS

- Sanna, M.D., et al. 2016. Increase of neurofilament-H protein in sensory neurons in antiretroviral neuropathy: evidence for a neuroprotective response mediated by the RNA-binding protein HuD. *Pharmacol. Res.* 111: 23-33.
- Sanna, M.D., et al. 2017. Effect of amitriptyline treatment on neurofilament-H protein in an experimental model of depression. *Brain Res. Bull.* 128: 1-6.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.