

# NF-H (2D2): sc-20014

## BACKGROUND

Neurofilament-H (NF-H), for neurofilament heavy polypeptide, 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  $\gamma$ . 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 amyotrophic 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.
- Angelides, K.J., et al. 1989. Assembly and exchange of intermediate filament proteins of neurons: neurofilaments are dynamic structures. *J. Cell Biol.* 108: 1495-1506.
- 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.
- 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

NF-H (2D2) is a mouse monoclonal antibody raised against neurofilament purified from human brain.

## PRODUCT

Each vial contains 200  $\mu$ g IgM kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## STORAGE

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

## APPLICATIONS

NF-H (2D2) is recommended for detection of NF-H of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)] and immunofluorescence (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.

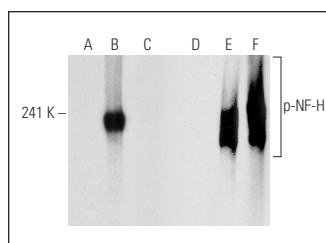
Molecular Weight of NF-H: 200 kDa.

Positive Controls: rat brain extract: sc-2392, SK-N-MC cell lysate: sc-2237 or H4 cell lysate: sc-2408.

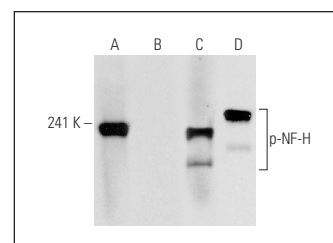
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein L-Agarose: sc-2336 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## 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 (RNF405): sc-32730 (A,B) and NF-H (2D2): sc-20014 (C,D).

## SELECT PRODUCT CITATIONS

- Chen, S., et al. 2015. Expression of purinergic receptor P2Y4 in Schwann cell following nerve regeneration. *Int. J. Clin. Exp. Med.* 8: 13203-13210.
- Gravina, G.L., et al. 2019. The small molecule ephrin receptor inhibitor, GLPG1790, reduces renewal capabilities of cancer stem cells, showing anti-tumour efficacy on preclinical glioblastoma models. *Cancers* 11: 359.

## RESEARCH USE

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