SANTA CRUZ BIOTECHNOLOGY, INC.

NF-M/H (RMdO-20): sc-32273

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Neurofilament-M (NF-M), also known as neurofilament medium polypeptide, and Neurofilament-H (NF-H), also known as neurofilament heavy polypeptide, members of the intermediate filament family, are major components 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 amyotrophic lateral sclerosis (ALS), Parkinson's disease, and Alzheimer's disease.

REFERENCES

1. Levy, E., et al. 1987. Structure and evolutionary origin of the gene encoding NF-M, the middle-molecular-mass neurofilament protein. Eur. J. Biochem. 166: 71-77.
2. 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.
3. Sihag, R.K., et al. 1989. *In vivo* phosphorylation of distinct domains of the 70 kilodalton neurofilament subunit involves different protein kinases. J. Biol. Chem. 264: 457-464.
4. Hisanaga, S., et al. 1990. Effects of phosphorylation of the neurofilament L protein on filamentous structures. Cell Regul. 1: 237-248.
5. 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.
6. Nakamura, Y., et al. 1997. Abnormal distribution of neurofilament L in neurons with Alzheimer's disease. Neurosci. Lett. 225: 201-204.
7. 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: NEFM (human) mapping to 8p21.2, NEFH (human) mapping to 22q12.2; Nefm (mouse) mapping to 14 D1, Nefh (mouse) mapping to 11 A1.

SOURCE

NF-M/H (RMdO-20) is a mouse monoclonal antibody raised against neurofilament purified from human brain.

PRODUCT

Each vial contains 200 µg IgG_1 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-M/H (RMdO-20) is recommended for detection of NF-M and NF-H of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

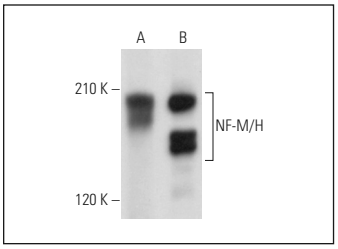
Molecular Weight of NF-M/H: 160/200 kDa.

Positive Controls: mouse brain extract: sc-2253, rat brain extract: sc-2392 or human brain extract: sc-364375.

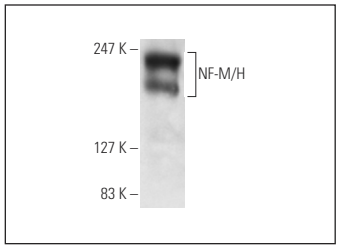
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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 A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ 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



NF-M/H (RMdO-20): sc-32273. Western blot analysis of NF-M/H expression in mouse brain (**A**) and human brain (**B**) tissue extracts.



NF-M/H (RMdO-20): sc-32273. Western blot analysis of neurofilament 160/200 expression in rat brain tissue extract.

SELECT PRODUCT CITATIONS

1. Ríos, C., et al. 2015. Anti-apoptotic effects of dapsone after spinal cord injury in rats. Neurochem. Res. 40: 1243-1251.
2. Rios, C., et al. 2018. Metallothionein-I + II reduces oxidative damage and apoptosis after traumatic spinal cord injury in rats. Oxid. Med. Cell. Longev. 2018: 3265918.
3. Tevzadze, G., et al. 2021. Gut neurotoxin p-cresol induces brain-derived neurotrophic factor secretion and increases the expression of neurofilament subunits in PC-12 cells. AIMS Neurosci. 9: 12-23.
4. Wang, X., et al. 2023. SOX2-positive retinal stem cells are identified in adult human pars plicata by single-cell transcriptomic analyses. MedComm 4: e198.

RESEARCH USE

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