

# NF-M (NF-09): sc-51683

## BACKGROUND

Neurofilament-M (NF-M), for neurofilament medium 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

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.

## CHROMOSOMAL LOCATION

Genetic locus: NEFM (human) mapping to 8p21.2; Nefm (mouse) mapping to 14 D1.

## SOURCE

NF-M (NF-09) is a mouse monoclonal antibody raised against brain tissue homogenate of porcine origin.

## PRODUCT

Each vial contains 100  $\mu$ g IgG<sub>2a</sub> in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

NF-M (NF-09) is recommended for detection of phosphorylated and non-phosphorylated form of medium NF-M (MW 160 kDa) of mouse, rat, human and porcine 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)], 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-M siRNA (h): sc-36050, NF-M siRNA (m): sc-36051, NF-M shRNA Plasmid (h): sc-36050-SH, NF-M shRNA Plasmid (m): sc-36051-SH, NF-M shRNA (h) Lentiviral Particles: sc-36050-V and NF-M shRNA (m) Lentiviral Particles: sc-36051-V.

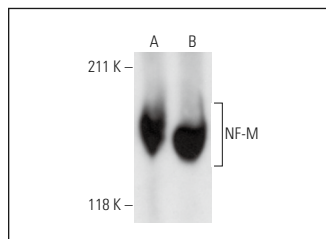
Molecular Weight of NF-M: 160 kDa.

Positive Controls: NF-M (m): 293 Lysate: sc-179000, mouse brain extract: sc-2253 or rat brain extract: sc-2392.

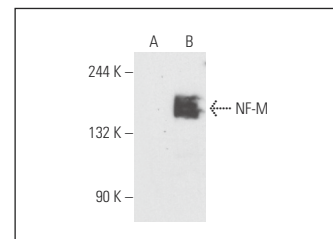
## STORAGE

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

## DATA



NF-M (NF-09): sc-51683. Western blot analysis of NF-M expression in rat brain (A) and mouse brain (B) tissue extracts.



NF-M (NF-09): sc-51683. Western blot analysis of NF-M expression in non-transfected: sc-110760 (A) and mouse NF-M transfected: sc-179000 (B) 293 whole cell lysates.

## SELECT PRODUCT CITATIONS

1. Zhai, J., et al. 2009. Proteomic characterization of lipid raft proteins in amyotrophic lateral sclerosis mouse spinal cord. *FEBS J.* 276: 3308-3323.
2. Zha, Y., et al. 2012. Functional dissection of HOXD cluster genes in regulation of neuroblastoma cell proliferation and differentiation. *PLoS ONE* 7: e40728.
3. Wang, X., et al. 2013. HoxC9 directly regulates distinct sets of genes to coordinate diverse cellular processes during neuronal differentiation. *BMC Genomics* 14: 830.
4. Hong, G.S., et al. 2016. Tentonin 3/TMEM150c confers distinct mechanosensitive currents in dorsal-root ganglion neurons with proprioceptive function. *Neuron* 91: 107-118.
5. Bachiller, S., et al. 2018. HERC1 ubiquitin ligase is required for normal axonal myelination in the peripheral nervous system. *Mol. Neurobiol.* 55: 8856-8868.
6. Yang, L., et al. 2019. Histone demethylase KDM6B has an anti-tumorigenic function in neuroblastoma by promoting differentiation. *Oncogenesis* 8: 3.
7. Diez-Fernandez, C., et al. 2019. Argininosuccinate neurotoxicity and prevention by creatine in argininosuccinate lyase deficiency: an *in vitro* study in rat 3D organotypic brain cell cultures. *J. Inher. Metab. Dis.* 42: 1077-1087.
8. Joseph, S., et al. 2019. Myelinating glia-specific deletion of Fbxo7 in mice triggers axonal degeneration in the central nervous system together with peripheral neuropathy. *J. Neurosci.* 39: 5606-5626.
9. Franco-Espin, J., et al. 2022. SMN is physiologically downregulated at wild-type motor nerve terminals but aggregates together with neurofilaments in SMA mouse models. *Biomolecules* 12: 1524.

## RESEARCH USE

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