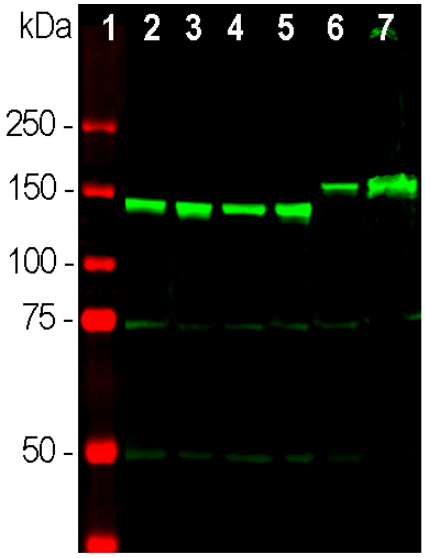
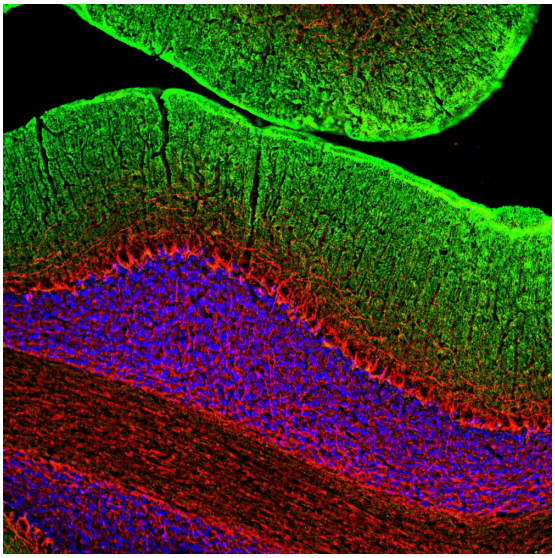
Neurofilament NF-M Rabbit Polyclonal Antibody

RPCA-NF-M

Applications	Host	Isotype	Molecular Wt.	Species Cross-Reactivity
WB, IF/ICC, IHC, ABC	Rabbit		145-160kDa	Hu, Rt, Ms, Bo, Po, Ho, Ck



Western blot analysis of neuronal tissue lysates using rabbit pAb to NF-M, RPCA-NF-M, dilution 1:2,000 in green: [1] protein standard (red), [2] rat brain, [3] rat spinal cord, [4] mouse brain, [5] mouse spinal cord, [6] pig brain and [7] pig spinal cord. Strong bands at 145kDa correspond to rodent NF-M molecules, while the NF-M of pig and other larger mammals including humans run at about 160kDa.



Immunofluorescent analysis of rat cerebellum section stained with rabbit pAb to NF-M, RPCA-NF-M, dilution 1:2,000 in red, and costained with mouse mAb to GAP43, MCA-3H14, dilution 1:2,000 in green. Following transcardial perfusion of rat with 4% paraformaldehyde, brain was post fixed for 24 hours, cut to 45µM, and free-floating sections were stained with the above antibodies. The RPCA-NF-M antibody strongly labels neuronal processes throughout the cerebellum, while the GAP43 antibody stains predominantly synaptic regions in the molecular layer.

Background:

Neurofilaments are the 10nm or intermediate filament proteins found specifically in neurons, and are composed predominantly of three major proteins called NF-L, NF-M and NF-H. NF-M is the neurofilament middle or medium molecular weight polypeptide and runs on SDS-PAGE gels at 145-160kDa, with some species variability, though the real molecular weight is ~105kDa. The major function of neurofilaments is likely to control the diameter of large axons (1). Antibodies to NF-M such as RPCA-NF-M are useful for identifying neuronal cells and their processes in tissue sections and in cell culture. NF-M antibodies can also be useful to visualize neurofilament rich accumulations seen in many neurological diseases, such as Amyotrophic Lateral Sclerosis (a.k.a. Lou Gehrig's disease) and Alzheimer's disease (2-4).Much recent evidence has suggested that the detection of NF-L and NF-H in blood and CSF might be a useful prognostic or diagnostic biomarkers of neuronal damage and degeneration associated with a variety of CNS pathologies (5,6). The potential utility of NF-M in this fashion has not to date been examined.

The RPCA-NF-M antibody was made against a recombinant fusion protein of *E. coli* TrpE fused to the C-terminus of rat NF-M, amino acids 677-845 (7). This region is very highly conserved in protein sequence across species boundaries and contains some interesting peptide repeats of currently unknown function (8). The RPCA-NF-M antibody is very similar in properties to a rabbit polyclonal the production and characterization of which were described in reference 7. As shown here, the antibody works well for western blotting, IF, ICC and IHC. Also available from EnCor is a chicken polyclonal and a widely used mouse monoclonal antibody to the same immunogen CPCA-NF-M, and MCA-3H11. All three antibodies works on a variety of species and are clean and specific on western blots, cell and tissue staining.

Ordering Information
Web *www.encorbio.com*
Email *admin@encorbio.com*
Phone *352-372-7022*
Fax *352-372-7066*

HGNC Name: *NEFM*
UniProt: *P07197*
RRID: *AB_2572366*
Immunogen: *Recombinant fusion protein containing the extreme C-terminal segment of rat NF-M, amino acids 549-845*
Format: *Supplied as an aliquot of serum plus 5mM* NaN_3
Storage: *Storage for short term at 4°C recommended, for longer term at -20°C, minimize freeze/thaw cycles*
Recommended dilutions:
WB: 1:1,000-5,000. IF/ICC: 1:2,000 and IHC: 1:1,000-1:2,500.

References:

1. Hoffman et al. Neurofilament gene expression:a major determinant of axonal caliber. PNAS 84:3472-6 (1987).
2. Perrot R, et al. Review of the Multiple Aspects of Neurofilament Functions, and their Possible Contribution to Neurodegeneration. Mol. Neurobiol. 38:27-65 (2008).
3. Lépinoux-Chambaud C. Eyer J. Review on intermediate filaments of the nervous system and their pathological alterations. Histochem. Cell Biol. 140:13-22 (2013).
4. Liu Q. et al. Neurofilamentopathy in Neurodegenerative Diseases. Open Neurol. J. 5:58–62 (2011).
5. Bacioglu M, et al. Neurofilament light chain in blood and CSF as marker of disease progression in mouse models and in neurodegenerative diseases. Neuron 91:56-66 (2016).
6. Shaw G. The use and potential of pNF-H as a general blood biomarker of axonal loss: an immediate application for CNS injury. in Brain Neurotrauma: Molecular, Neuropsychological, and Rehabilitation Aspects. CRC Press/Taylor & Francis Chapter 21 (2015).
7. Harris J, Ayyub C. and Shaw G. A molecular dissection of the carboxyterminal tails of the major neurofilament subunits NF-M and NF-H. J. Neurosci. Res. 30:47-62 (1991).
8. Shaw G. Identification of previously unrecognized sequence motifs at the extreme carboxyterminus of the neurofilament subunit NF-M. BBRC 14;162:294-9 (1989).

Abbreviation Key:

mAb—Monoclonal Antibody pAb—Polyclonal Antibody WB—Western Blot IF—Immunofluorescence ICC—Immunocytochemistry IHC—Immunohistochemistry E—ELISA Hu—Human Mo—Monkey Do—Dog Rt—Rat Ms—Mouse Co—Cow Pi—Pig Ho—Horse Ch—Chicken Dr—D. rerio Dm—D. melanogaster Sm—S. mutans Ce—C. elegans Sc—S. cerevisiae Sa—S. aureus Ec—E. coli.