

Neurofilament NF-M Chicken Polyclonal Antibody

CPCA-NF-M

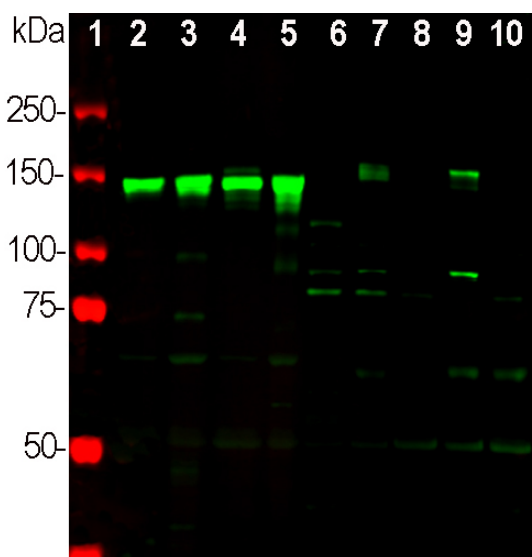
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HGNC Name: NEFM
UniProt: P07197
RRID: AB_2572367
Immunogen: Recombinant construct containing the C-terminus of the human sequence (amino acids 708-877) expressed in and purified from *E. coli*.
Format: Concentrated IgY preparation in PBS plus 0.02% Na₂S₂O₃
Storage: Store at 4°C for short term, for longer term store at -20°C
Recommended dilutions:
WB: 1:2,000-5,000, IF/ICC & IHC: 1:2,000

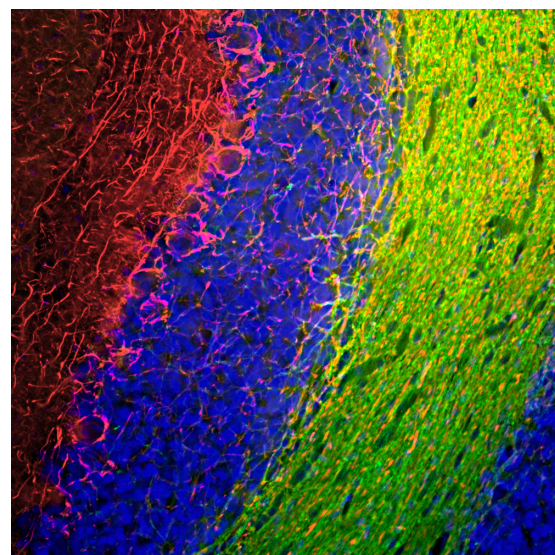
References:

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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).
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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).

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



Western blot analysis of different neuronal tissue and cell lysates using chicken pAb to NF-M, CPCA-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] NIH/3T3 cells, [7] HEK293, [8] HeLa, [9] SH-SY5Y, and [10] C6 cells. Strong band at 145kDa corresponds to rodent NF-M, and about 160kDa band corresponds to human NF-M protein, visible in SHSY-5Y and HEK293 cells which have neuronal properties. NF-M is not expressed in HeLa and other cell lines tested.



Immunofluorescent analysis of rat cerebellum section stained with chicken pAb to NF-M, CPCA-NF-M, dilution 1:1,000 in red, and costained with mouse mAb to CNP, MCA-1H10, dilution 1:500 in green. The blue is DAPI staining of nuclear DNA. 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 NF-M antibody labels the network of axons of basket neurons and other neurons. The CNP antibody stains oligodendrocytes, cells that create myelin sheaths around axons.

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 CPCA-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 CPCA-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 CPCA-NF-M antibody is very similar in properties to a rabbit polyclonal the production and characterization of which were described in reference 7. Also available from EnCor is a rabbit polyclonal and a widely used mouse monoclonal antibody to the same immunogen **RPCA-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.

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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*.