

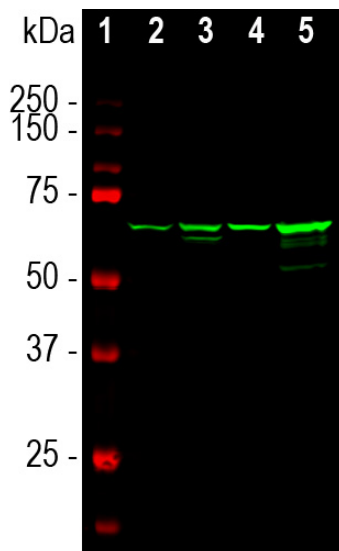
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**HGNC Name:** NEFL  
**UniProt:** P07196  
**RRID:** AB\_2572363  
**Immunogen:** Full length native protein purified from pig spinal cord  
**Format:** Purified antibody at 1mg/mL in 50% PBS, 50% glycerol plus 5mM NaN<sub>3</sub>  
**Storage:** Store at 4°C for short term, for longer term at -20°C  
**Recommended dilutions:**  
 WB: 1:5,000-1:10,000. IF/ICC: 1:100-1:500. IHC: not recommended

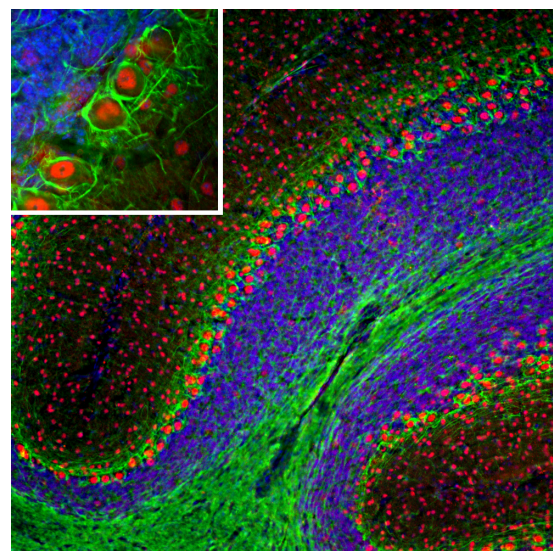
#### References:

- Hoffman et al. Neurofilament gene expression: a major determinant of axonal caliber. *PNAS* 84:3472-6 (1987).
- Perrot R, et al. Review of the Multiple Aspects of Neurofilament Functions, and their Possible Contribution to Neurodegeneration. *Mol. Neurobiol.* 38:27-65 (2008).
- Lépinoux-Chambaud C. Eyer J. Review on intermediate filaments of the nervous system and their pathological alterations. *Histochem. Cell Biol.* 140:13-22 (2013).
- Liu Q. et al. Neurofilamentopathy in Neurodegenerative Diseases. *Open Neurol. J.* 5:58-62 (2011).
- 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).

Applications	Host	Isotype	Molecular Wt.	Species Cross-Reactivity
WB, IF/ICC	Mouse	IgG2b heavy, κ light	68-70kDa	Hu, Rt, Ms, Co, Pi, Ho



Western blot analysis of different tissue lysates using mouse mAb to NF-L, MCA-7D1, dilution 1:5,000 in green: [1] protein standard (red), [2] rat brain, [3] rat spinal cord, [4] mouse brain, and [5] mouse spinal cord. The strong band at 68kDa corresponds to the NF-L protein.



Immunofluorescent analysis of a section of mouse cerebellum stained with mouse mAb to NF-L, MCA-7D1, dilution 1:5,000 in green, and costained with chicken pAb to FOX2, CPCA-FOX2, dilution 1:2,000 in red. The blue is Hoechst staining of nuclear DNA. Following transcardial perfusion of mouse with 4% paraformaldehyde, brain was post fixed for 24 hours, cut to 45μM, and free-floating sections were stained with above antibodies. NF-L antibody labels dendrites and axons of neuronal cells predominantly axons in white matter and basket cell axons associated with Purkinje cells. The FOX2 antibody reveals protein expressed in a subset of neurons, including the Purkinje cells.

#### 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, though other filament proteins may be included also. The major function of neurofilaments is likely to control the diameter of large axons (1). NF-L is the neurofilament light or low molecular weight polypeptide and runs on SDS-PAGE gels at 68-70kDa with some variability across species. Antibodies to NF-L like MCA-7D1 are useful for identifying neuronal cells and their processes in cell culture and sectioned material. NF-L antibody can also be useful for the visualization of neurofilament rich accumulations seen in many neurological diseases, such as Lou Gehrig's disease (ALS), giant axon neuropathy, Charcot-Marie Tooth disease and others (2-4). Much interest has recently been focused on the detection of NF-L released from neurons into blood and CSF as a surrogate marker of primarily axonal loss in a variety of types of CNS injury and degeneration (5).

MCA-7D1 antibody was made against a preparation of recombinant full length human NF-L. It binds NF-L from a variety of species including human, rat and mouse. The epitope is not fully characterized since it could not be localized using 20 amino acid nested peptides but is known to be not within the α-helical region, amino acids 88-400 of the human protein. The antibody works well for WB, IF and ICC, but is not recommended for IHC, for that we suggest [MCA-DA2](#). We also market several other NF-L antibodies including a rabbit and chicken polyclonal antibodies [RPCA-NF-L](#) and [CPCA-NF-L](#).

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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*.