Ordering Information
Web www.encorbio.com
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Phone 352-372-7022
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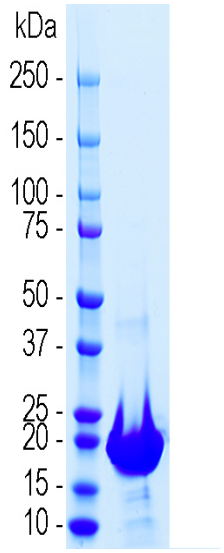
HGNC Name: *NEFL*
RRID: *NA*
Format: *0.5mg/mL in 6M urea, 10mM Phosphate pH=7.5*
Storage: *Stable at 4°C for several months. For longer term store at -20°C or lower*
UniProt: *PO7196*

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).

Neurofilament NF-L-rod-CT Recombinant Protein Fragment PROT-r-NF-L-Rct

Applications	Host	Molecular Wt.	HGNC	UniPort
Protein standard for ELISA, MSD, Luminex and Simoa assays, immunogen for antibody production	E. coli	22.5kDa by SDS-PAGE plus ~5kDa His Tag	NEFL	PO7196



Coomassie Brilliant Blue stained SDS-PAGE gel of recombinant NF-L fragment expressed in and purified from *E. coli*. About 10µg of the protein was run on the right lane which is rather overloaded. Lower amounts of this protein run at 23kDa as expected. Protein molecular weight standards are in the first lane and apparent molecular weights are as indicated.

Background:

Neurofilaments are the 10 nm or intermediate filament proteins found specifically in neurons, and are composed predominantly of four major proteins called NF-L, NF-M, NF-H and α-internexin. NF-L, NF-M and NF-H were named based on their apparent molecular weight on SDS-PAGE gels, so NF-L is low or light, NF-M is medium or middle and NF-H is high or heavy. On SDS-PAGE NF-L runs at 68-70kDa, NF-M at 145-160kDa and NF-H at 200-220kDa with some species variability, larger species tending to have larger molecules. In every case the real molecular weight is significantly lower since long acidic sequences in these molecules cause them to run aberrantly. These three proteins are major components of large diameter axons in the adult, while α-internexin is a more major component of the developing nervous system, although still present in the adult. NF-L and other neurofilament subunits accumulate in many neurological diseases, such as Lou Gehrig's disease (ALS) and Alzheimer's disease, and mutations in the protein coding region of the human NF-L gene cause some forms of Charcot-Marie-Tooth disease (2-4). NF-L is a very abundant protein particularly concentrated in large diameter axons and may leak into blood and CSF following various kinds of axonal injury and/or degeneration. There has therefore been much recent interest in the detection of NF-L in CSF and blood as a surrogate marker of neuronal damage and degeneration (5). NF-L is also known as NF-Light, Nfl and NEFL.

A codon optimized cDNA designed to express amino acids 256-400 of the α-helical rod region of human neurofilament NF-L, specifically the Coil 2a and Coil 2b regions, which was inserted into pET30a(+) eukaryotic expression vector, which adds an N-terminal in frame His-tag and some other vector derived sequence. This was transformed into *E. coli* and the recombinant protein was purified in 6M urea using immobilized metal affinity chromatography. Purified protein was diluted to 0.5mg/mL and is supplied in 6M urea. Our full length recombinant human NF-L protein PROT-r-NF-L is widely used as a protein standard in ELISA, Simoa and other kinds of antibody based assays for NF-L detection. This truncated product contains the epitopes for both the capture and detect NF-L monoclonal antibodies used in the Uman NF-Light Assay and also for our NF-L mouse monoclonal MCA-1B11 clone.

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.