Product name:	Neurofilament Medium (NF-M)
Cat number:	AB-10686
Conjugate:	Unconjugated
Size:	50 ul
Clone:	POLY
Concentration:	1mg/ml
Host:	Ch
Isotype:	IgG
Immunogen:	Recombinant construct containing the C-terminus of the human sequence (amino acids 708-877) expressed in and purified from E. coli.
Reactivity:	Hu, Rt, Ms, Ch
Applications:	Western Blot: 1:2,000-5,000 Immunofluorescence: 1:500-1,000 Immunocytochemistry: 1:500-1,000 Immunohistochemistry: 1:500-1,000
Molecular Weight:	145-160kDa by SDSPAGE
Purification:	Serum
Form:	Liquid
Buffer:	Antibody supplied as an aliquot of IgY preparation at 20-30 mg/mL with 5mM NaN3
Storage:	Store at 4°C. For long term storage, leave frozen at -20°C

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 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 -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).

Western blot analysis of different neuronal tissue and cell lysates using chicken pAb to NF-M, 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, NF-M, dilution 1:1,000 in red, and costained with mouse mAb to CNP, 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.