Product Data Sheet:
Neurofilament Heavy (NF-H) (Phosphorylated)

Cat. No:	MAB-94072
Conjugate:	Unconjugated
Size:	100 ug
Clone:	SMI-31
Concentration:	1mg/ml
Host:	Ms
Isotype:	IgG1
Immunogen:	Native NF-H purified from bovine spinal cord
Reactivity:	Mamm.
Applications:	Western Blot: 1:10,000 Immunocytochemistry: 1:1,000 Immunofluorescence: 1:1,000 Immunohistochemistry: 1:1,000.
Molecular Weight:	200-220kDa
Purification:	Purified
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 proteins may also be present. NF-H is the neurofilament high or heavy molecular weight polypeptide and runs on SDS-PAGE gels at 200-220 kDa, with some variability across species boundaries. The protein is in reality much smaller in molecular size, about 110kDa. The unusual SDS-PAGE mobility is due partly to a very high content of charged amino acids, particularly glutamic acid rich regions, and the non-phosphorylated form runs on SDS-PAGE at about 160kDa. The predominant type of NF-H is the axonal form which is heavily serine phosphorylated on 40 or more tandemly repeated lysine-serine-proline (KSP) containing peptides . The phosphorylation of these peptides results in considerable further retardation on SDS-PAGE gels, so the heavily phosphorylated axonal form runs at 200-220kDa with some species variability. Antibodies to NF-H are useful for identifying axonal processes in tissue sections and in culture. NF-H antibodies can also be useful in visualizing neurofilament accumulations seen in many neurological disorders, such as Amyotrophic Lateral Sclerosis (also known as Lou Gehrig's disease), Alzheimer's disease and following traumatic injury. The phosphorylated axonal form of NF-H, usually referred to as pNF-H, can be detected in blood and CSF following a variety of damage and disease states resulting in axonal compromise, and antibodies such as this can be used to used to quantify such ongoing axonal loss. SMI-31 is a mouse monoclonal antibody raised against native axonal phosphorylated NF-H purified from bovine spinal cord .SMI-31 recognizes phosphorylated NF-H KSP sequences but not non-phosphorylated KSP sequences, similar to other antibodies to NF-H . In some species there is some cross-reactivity with the phosphorylated KSP sequences found in the related neurofilament subunit NF-M. The antibody recognizes NF-H strongly in all mammals tested to date and also in chicken. It recognizes neurofilaments in frozen sections in tissue culture and in formalin fixed sections.
Form:	Liquid
Buffer:	Purified antibody at 1mg/mL in 50% PBS, 50% glycerol plus 5mM NaN3
Storage:	Store at 4°C for short term, for longer term at -20°C

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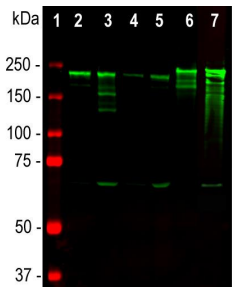
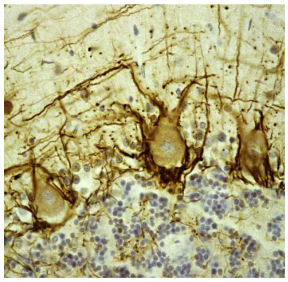


Western blot analysis of tissue lysates using mouse mAb to NF-H, SMI-31, dilution 1:10,000 in green: protein standard (red), rat brainrat spinal cord, mouse brain, mouse spinal cord, pig spinal cordcow spinal cord. Strong band at about 200-220 kDa corresponds to the major phosphorylated from of the NF-H subunit. A minor band at about 160 kDa is the non-phosphorylated NF-H. Smaller proteolytic fragments of NF-H are also detected in spinal cord preparations with SMI-31 antibody.



Immunohistological analysis of human cerebellar cortex section stained with mouse mAb to pNF-H, SMI-31, in brown. Paraffin embedded, formalin-fixed tissue sections were stained with this antibody using the avidin biotin conjugate method. The sections was counterstained with Hematoxylin in blue. SMI-31 stains prominent basket cell axons surrounding the large Purkinje neurons. Cerebellar granule cell layer is at the bottom of the image, the molecular layer at the top.

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