abcam

ab7255

Anti-68kDa Neurofilament/NF-L antibody [DA2]

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	Preservative: 0.033% Sodium azide Constituents: Tissue culture supernatant
Form	Liquid
Clonality	Monoclonal
Immunogen	Native Full Length Protein corresponding to Pig NEFL. Database link P02547
Clone number	DA2
Purity	Tissue culture supernatant
Specificity	Specifically recognizes the light neurofilament subunit or 68kDa Neurofilament/NF-L.
Epitope	Epitope mapped to a short peptide in the C-terminal “tail” region of the molecule within the human sequence SYYTSHVQEEQIEVE, amino acids 441-455.
Light chain type	kappa

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	1/100

Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Expected

Species	Rat
Dilution info	1/100
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Species	Mouse
Dilution info	1/100
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Predicted

Species	Bird, Mammals
Dilution info	-
Notes	-

WB

Tested

Species	Mouse
Dilution info	1/5000 - 1/10000
Notes	-

Species	Rat
Dilution info	1/5000 - 1/10000
Notes	-

Expected

Species	Human
Dilution info	1/5000 - 1/10000

Notes	-

Predicted

Species	Bird, Mammals
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/1000
Notes	(works on mildly formalin fixed sections)

Expected

Species	Mouse
Dilution info	1/1000
Notes	(works on mildly formalin fixed sections)

Species	Rat
Dilution info	1/1000
Notes	(works on mildly formalin fixed sections)

Predicted

Species	Bird, Mammals
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Rat

Dilution info	1/1000
Notes	For unpurifed use at : 1/100 - 1/500

Expected

Species	Human
Dilution info	1/1000
Notes	For unpurifed use at : 1/100 - 1/500

Species	Mouse
Dilution info	1/1000
Notes	For unpurifed use at : 1/100 - 1/500

Predicted

Species	Bird, Mammals
Dilution info	-
Notes	-

Target data

See full target information NEFL

Function	Neurofilaments usually contain three intermediate filament proteins: NEFL, NEFM, and NEFH which are involved in the maintenance of neuronal caliber. May additionally cooperate with the neuronal intermediate filament proteins PRPH and INA to form neuronal filamentous networks (By similarity).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C

Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	The 68kDa Neurofilament also known as NF-L or neurofilament light plays a mechanical role in maintaining the structural integrity of neurons. This protein is characterized by its mass of 68 kilodaltons. It expresses specifically in the cytoplasm of neurons where it forms a critical part of the neurofilament protein triplet along with NF-M and NF-H. These components collectively form the intermediate filaments found in the neuron axons providing essential structural support.
Biological function summary	The neurofilament protein functions to stabilize the axonal diameter thereby affecting neuronal conductivity. It integrates into a complex with other neurofilament proteins and related molecules forming cross-bridges that aid in strengthening the cellular structure. This protein-protein interaction is vital for normal neuronal function and efficient nerve signal transmission.
Pathways	Neurofilament proteins contribute to cellular processes within the nervous system. It participates in the axonal transport pathway which includes the transport of synaptic vesicles and organelles along axons. This movement is facilitated by interactions with motor proteins like kinesin and dynein which help in moving these materials to their destinations. Additionally NF-L connects to actin filaments collaborating to sustain neuronal shape and function.
Associated diseases and disorders	Neurofilament proteins have links to conditions such as amyotrophic lateral sclerosis (ALS) and Alzheimer's disease. Elevated levels of NF-L are often observed in ALS suggesting neuronal damage as axonal injury raises the protein's presence in the cerebrospinal fluid. Similarly in Alzheimer's disease aberrant interaction of tau protein with neurofilament proteins disrupts neuronal function. These connections highlight NF-L's potential as a biomarker for neural injury and neurodegenerative diseases.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

We do not recommend this combination. It is not covered by our product promise.

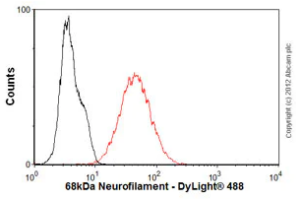
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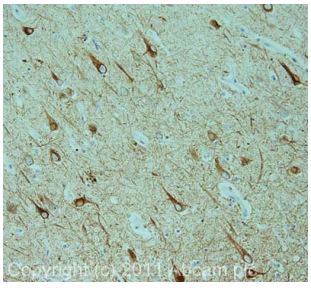
6 product images



Flow Cytometry - Anti-68kDa Neurofilament/NF-L antibody [DA2] (ab7255)

68kDa Neurofilament/NF-L Flow Cytometry staining using mouse Anti-68kDa Neurofilament/NF-L antibody

Overlay histogram showing SH-SY5Y cells stained with ab7255 (red line). The cells were fixed with 4% paraformaldehyde (10 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab7255, 1/100 dilution) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1] (ab91353, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed. This antibody gave a positive signal in SH-SY5Y cells fixed with 80% methanol (5 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions.

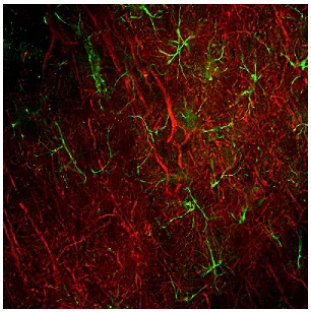


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-68kDa Neurofilament/NF-L antibody [DA2] (ab7255)

68kDa Neurofilament/NF-L Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-68kDa Neurofilament/NF-L antibody

IHC image of ab7255 staining in human hippocampus formalin fixed paraffin embedded tissue section, performed on a Leica Bond™ system using the standard protocol F. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH6, epitope retrieval solution 1) for 20 mins. The section was then incubated with ab7255, 1µg/ml, for 15 mins at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.

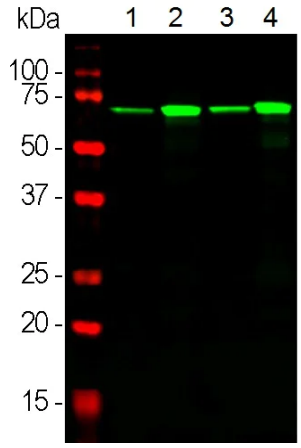
For other IHC staining systems (automated and non-automated) customers should optimize variable parameters such as antigen retrieval conditions, primary antibody concentration and antibody incubation times.



Immunocytochemistry/ Immunofluorescence - Anti-68kDa Neurofilament/NF-L antibody [DA2] (ab7255)

68kDa Neurofilament/NF-L Immunocytochemistry/ Immunofluorescence staining using mouse Anti-68kDa Neurofilament/NF-L antibody

ab7255 staining 68kDa Neurofilament/NF-L in rat frontal cortex sections by Immunocytochemistry/Immunofluorescence. Samples were incubated with primary antibody at 1/5000 dilution (red) and chicken polyclonal to GFAP.



Western blot - Anti-68kDa Neurofilament/NF-L antibody [DA2] (ab7255)

68kDa Neurofilament/NF-L Western blot staining using mouse Anti-68kDa Neurofilament/NF-L antibody

All lanes:
Western blot - Anti-68kDa Neurofilament/NF-L antibody [DA2] (ab7255) at 1/5000 dilution

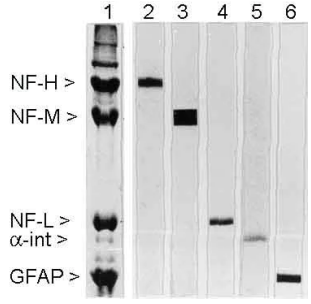
Lane 1:
rat brain whole tissue lysates

Lane 2:
rat spinal cord whole tissue lysates

Lane 3:
mouse brain whole tissue lysates

Lane 4:
mouse spinal cord whole tissue lysates

Predicted band size: 62 kDa



Western blot - Anti-68kDa Neurofilament/NF-L antibody [DA2] (ab7255)

Lane 1:
Coomassie Blue stain

Lane 2:
Heavy neurofilament antibody

Lane 3:
Anti-160 kD Neurofilament Medium antibody [3H11] (ab7256)

Lane 4:
Western blot - Anti-68kDa Neurofilament/NF-L antibody [DA2] (ab7255)

Lane 5:
alpha Internexin antibody

Lane 6:
GFAP antibody

All lanes:
Cytoskeletal homogenates of rat spinal cord

Predicted band size: 102 kDa, 62 kDa

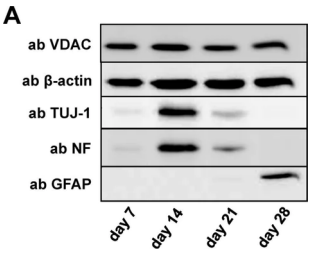


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Western blot - Anti-68kDa Neurofilament/NF-L antibody [DA2] (ab7255)

68kDa Neurofilament/NF-L western blot using anti-68kDa Neurofilament/NF-L antibody [DA2] ab7255. Publication image and figure legend from Rupprecht, A., Sittner, D., et al., 2014, PLoS One, PubMed 24523901.

ab7255 was used in this publication in western blot. This may not be the same as the application(s) guaranteed by Abcam. For a full list of applications guaranteed by Abcam for ab7255 please see the product overview.

Expression of neuronal/glial markers and UCP mRNA during neuronal differentiation.A. Representative Western blots show the time-dependent expression of neuronal (TUJ-1 for young and NF for adult neurons) and astrocyte (GFAP) markers during mESCs differentiation in culture. Gels were loaded with 20 µg protein per lane. B. Real-time PCR analysis of mESCs shows the amount of UCP2, UCP4 and UCP5 mRNA relative to mRNA amounts of the housekeeping gene GAPDH at different time points during neuronal differentiation. Each data point represents the mean value and SD of 3 independent differentiation experiments.

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