SANTA CRUZ BIOTECHNOLOGY, INC.

NKHC1 (C-11): sc-376452

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The Power to Question

BACKGROUND

NKHC1 (neuronal kinesin heavy chain 1), also known as KIF5A; kinesin family member 5A, NKHC; kinesin heavy chain, neuron-specific, SPG10 and spastic paraplegia 10, is a neuronal-specific component of a multi-subunit "molecular motor" complex that mediates intracellular organelle transport. Mutations in the gene encoding NKHC1 cause autosomal dominant spastic paraplegia 10. NKHC1 has a pan-neuronal distribution in the nervous system. Rat tissue extracts by immunoblot of NKHC1 can produce a doublet only in brain and sciatic nerve tissue. NKHC1 is distributed throughout the central nervous system and is enriched in subsets of neurons. Within cultured hippocampal neurons, NKHC1 is concentrated in the perinuclear region of the cell body. Kinesin superfamily proteins like NKHC1 are the molecular motors conveying cargos along microtubules.

REFERENCES

1. Niclas, J., et al. 1994. Cloning and localization of a conventional kinesin motor expressed exclusively in neurons. Neuron 12: 1059-1072.
2. Rahman, A., et al. 1999. Defective kinesin heavy chain behavior in mouse kinesin light chain mutants. J. Cell Biol. 146: 1277-1288.
3. Kanai, Y., et al. 2000. KIF5C, a novel neuronal kinesin enriched in motor neurons. J. Neurosci. 20: 6374-6384.
4. Macioce, P., et al. 2003. β-dystrobrevin interacts directly with kinesin heavy chain in brain. J. Cell Sci. 116: 4847-4856.
5. Xia, C.H., et al. 2003. Abnormal neurofilament transport caused by targeted disruption of neuronal kinesin heavy chain KIF5A. J. Cell Biol. 161: 55-66.

CHROMOSOMAL LOCATION

Genetic locus: KIF5A (human) mapping to 12q13.3; Kif5a (mouse) mapping to 10 D3.

SOURCE

NKHC1 (C-11) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 9-45 near the N-terminus of NKHC1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

NKHC1 (C-11) is available conjugated to agarose (sc-376452 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-376452 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376452 PE), fluorescein (sc-376452 FITC), Alexa Fluor® 488 (sc-376452 AF488), Alexa Fluor® 546 (sc-376452 AF546), Alexa Fluor® 594 (sc-376452 AF594) or Alexa Fluor® 647 (sc-376452 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376452 AF680) or Alexa Fluor® 790 (sc-376452 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-376452 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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APPLICATIONS

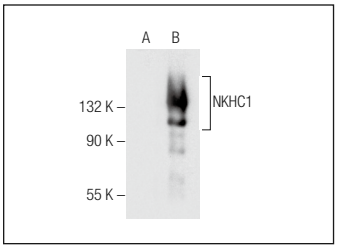
NKHC1 (C-11) is recommended for detection of neuronal kinasin heavy chain 1 (NKHC1) of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for NKHC1 siRNA (h): sc-36073, NKHC1 siRNA (m): sc-36074, NKHC1 shRNA Plasmid (h): sc-36073-SH, NKHC1 shRNA Plasmid (m): sc-36074-SH, NKHC1 shRNA (h) Lentiviral Particles: sc-36073-V and NKHC1 shRNA (m) Lentiviral Particles: sc-36074-V.

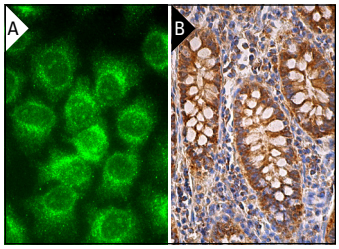
Molecular Weight of NKHC1: 133 kDa.

Positive Controls: SH-SY5Y cell lysate: sc-3812, IMR-32 cell lysate: sc-2409 or NKHC1 (h): 293T Lysate: sc-112712.

DATA



NKHC1 (C-11): sc-376452. Western blot analysis of NKHC1 expression in non-transfected: sc-117752 (**A**) and human NKHC1 transfected: sc-112712 (**B**) 293T whole cell lysates.



NKHC1 (C-11): sc-376452. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human colon tissue showing cytoplasmic staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Klein, M.E., et al. 2019. Sam68 enables metabotropic glutamate receptor-dependent LTD in distal dendritic regions of CA1 hippocampal neurons. Cell Rep. 29: 1789-1799.e6.
2. Hamdan, H., et al. 2020. Mapping axon initial segment structure and function by multiplexed proximity biotinylation. Nat. Commun. 11: 100.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.