SANTA CRUZ BIOTECHNOLOGY, INC.

NKHC1 (D-3): sc-398759

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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.
6. Fichera, M., et al. 2004. Evidence of kinesin heavy chain (KIF5A) involvement in pure hereditary spastic paraplegia. Neurology 63: 1108-1110.
7. Sotelo-Silveira, J.R., et al. 2004. Myosin Va and kinesin II motor proteins are concentrated in ribosomal domains (periaxoplasmic ribosomal plaques) of myelinated axons. J. Neurobiol. 60: 187-196.
8. Brickley, K., et al. 2005. GRIF-1 and OIP106, members of a novel gene family of coiled-coil domain proteins: association *in vivo* and *in vitro* with kinesin. J. Biol. Chem. 280: 14723-14732.

CHROMOSOMAL LOCATION

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

SOURCE

NKHC1 (D-3) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 974-1005 near the C-terminus of NKHC1 of human origin.

PRODUCT

Each vial contains 200 µg IgM kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-398759 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

NKHC1 (D-3) is recommended for detection of 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) 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.

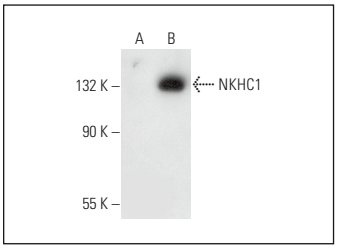
Molecular Weight of NKHC1: 133 kDa.

Positive Controls: NKHC1 (h2): 293T Lysate: sc-112832.

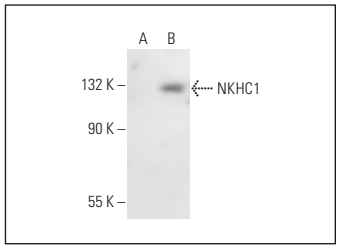
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein L-Agarose: sc-2336 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



NKHC1 (D-3): sc-398759. Western blot analysis of NKHC1 expression in non-transfected: sc-117752 (**A**) and human NKHC1 transfected: sc-112712 (**B**) 293T whole cell lysates.



NKHC1 (D-3): sc-398759. Western blot analysis of NKHC1 expression in non-transfected: sc-117752 (**A**) and human NKHC1 transfected: sc-112832 (**B**) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Polla, D.L., et al. 2021. Biallelic variants in TMEM222 cause a new autosomal recessive neurodevelopmental disorder. Genet. Med. 23: 1246-1254.

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.