

NKHC1 (G-1): sc-374666

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

- Niclas, J., et al. 1994. Cloning and localization of a conventional kinesin motor expressed exclusively in neurons. *Neuron* 12: 1059-1072.
- Rahman, A., et al. 1999. Defective kinesin heavy chain behavior in mouse kinesin light chain mutants. *J. Cell Biol.* 146: 1277-1288.
- Kanai, Y., et al. 2000. KIF5C, a novel neuronal kinesin enriched in motor neurons. *J. Neurosci.* 20: 6374-6384.
- Macioce, P., et al. 2003. β -dystrobrein interacts directly with kinesin heavy chain in brain. *J. Cell Sci.* 116: 4847-4856.
- 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.
- Fichera, M., et al. 2004. Evidence of kinesin heavy chain (KIF5A) involvement in pure hereditary spastic paraplegia. *Neurology* 63: 1108-1110.
- 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.
- Ceccarini, M., et al. 2005. Molecular basis of dystrobrein interaction with kinesin heavy chain: structural determinants of their binding. *J. Mol. Biol.* 354: 872-882.
- 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 (G-1) is a mouse monoclonal antibody raised against amino acids 506-580 of NKHC1 of human origin.

PRODUCT

Each vial contains 200 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

NKHC1 (G-1) is recommended for detection of neuronal kinesin 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 μ g per 100-500 μ g 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.

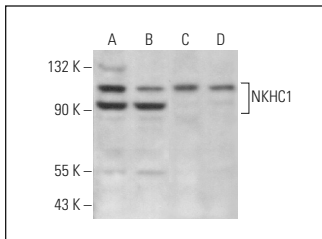
Molecular Weight of NKHC1: 133 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, C6 whole cell lysate: sc-364373 or IMR-32 cell lysate: sc-2409.

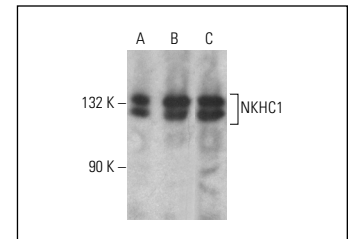
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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 A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 (G-1): sc-374666. Western blot analysis of NKHC1 expression in IMR-32 (A), K-562 (B), C6 (C) and EOC 20 (D) whole cell lysates.



NKHC1 (G-1): sc-374666. Western blot analysis of NKHC1 expression in human brain (A), human hypothalamus (B) and human cerebellum (C) tissue extracts.

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.