

KIF1A (E-20): sc-19106

BACKGROUND

The kinesins constitute a large family of microtubule-dependent motor proteins, which are responsible for the distribution of numerous organelles, vesicles and macromolecular complexes throughout the cell. Individual kinesin members play crucial roles in cell division, intracellular transport and membrane trafficking events including endocytosis and transcytosis. KIF1C is a member of the KIF1/Unc104 family of kinesin-like proteins, which are involved in the transport of mitochondria or synaptic vesicles in axons. The human KIF1A gene encodes a neuron-specific motor protein that delivers synaptic vesicle precursors to nerve terminals. KIF1A is a monomeric, globular molecule and has rapid anterograde motor activity (1.2 microns/s). KIF1A-mediated axonal transport plays a critical role in viability, maintenance and function of neurons, particularly mature neurons. KIF1A is associated with organelles that contain synaptic vesicle proteins such as synaptotagmin, synaptophysin and Rab 3A.

REFERENCES

- Okada, Y., et al. 1995. The neuron-specific kinesin superfamily protein KIF1A is a unique monomeric motor for anterograde axonal transport of synaptic vesicle precursors. *Cell* 81: 769-780.
- Hamm-Alvarez, S.F. 1998. Molecular motors and their role in membrane traffic. *Adv. Drug Deliv. Rev.* 29: 229-242.
- Dorner, C., et al. 1998. Characterization of KIF1C, a new kinesin-like protein involved in vesicle transport from the Golgi apparatus to the endoplasmic reticulum. *J. Biol. Chem.* 273: 20267-20275.
- Yonekawa, Y., et al. 1998. Defect in synaptic vesicle precursor transport and neuronal cell death in KIF1A motor protein-deficient mice. *J. Cell Biol.* 141: 431-441.

CHROMOSOMAL LOCATION

Genetic locus: KIF1A (human) mapping to 2q37.3; Kif1a (mouse) mapping to 1 D.

SOURCE

KIF1A (E-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of KIF1A of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-19106 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

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.

APPLICATIONS

KIF1A (E-20) is recommended for detection of KIF1A of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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).

KIF1A (E-20) is also recommended for detection of KIF1A in additional species, including canine, bovine and porcine.

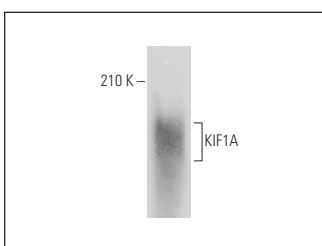
Suitable for use as control antibody for KIF1A siRNA (h): sc-43370, KIF1A siRNA (m): sc-43371, KIF1A shRNA Plasmid (h): sc-43370-SH, KIF1A shRNA Plasmid (m): sc-43371-SH, KIF1A shRNA (h) Lentiviral Particles: sc-43370-V and KIF1A shRNA (m) Lentiviral Particles: sc-43371-V.

Positive Controls: mouse lung extract: sc-2390.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



KIF1A (E-20): sc-19106. Western blot analysis of KIF1A expression in mouse lung tissue extract.

SELECT PRODUCT CITATIONS

- Dhar, S.S. and Wong-Riley, M.T. 2011. The kinesin superfamily protein KIF17 is regulated by the same transcription factor (NRF-1) as its cargo NR2B in neurons. *Biochim. Biophys. Acta* 1813: 403-411.
- Baptista, F.I., et al. 2013. Diabetes alters KIF1A and KIF5B motor proteins in the hippocampus. *PLoS ONE* 8: e65515.
- Baptista, F.I., et al. 2014. Diabetes induces changes in KIF1A, KIF5B and dynein distribution in the rat retina: implications for axonal transport. *Exp. Eye Res.* 127: 91-103.