

KIF1B siRNA (m): sc-35750

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. KIF1B is a member of the KIF1/Unc104 family of kinesin-like proteins that are involved in the transport of mitochondria or synaptic vesicles in axons. KIF1B is an amino-terminal-type motor protein that is ubiquitously expressed, with the most abundant levels in differentiated nerve cells. The human KIF1B gene maps to chromosome 1p36.2. Defects in axonal transport due to mutations at the KIF1B gene can underlie the human peripheral neuropathy phenotype. The mouse KIF1B gene generates an alternatively spliced transcript, which produces two isoforms.

REFERENCES

1. Nangaku, M., et al. 1994. KIF1B, a novel microtubule plus end-directed monomeric motor protein for transport of mitochondria. *Cell* 79: 1209-1220.
2. Hamm-Alvarez, S.F. 1998. Molecular motors and their role in membrane traffic. *Adv. Drug Deliv. Rev.* 29: 229-242.
3. Gong, T.W., et al. 1999. A novel mouse kinesin of the UNC-104/KIF1 subfamily encoded by the Kif1b gene. *Gene* 239: 117-127.
4. Cole D.G. 1999. Kinesin-II, the heteromeric kinesin. *Cell. Mol. Life Sci.* 56: 217-226.
5. Yang, Z., et al. 2001 Molecular cloning and functional analysis of mouse C-terminal kinesin motor Kif3C. *Mol. Cell. Biol.* 21: 75-70.

CHROMOSOMAL LOCATION

Genetic locus: Kif1b (mouse) mapping to 4 E2.

PRODUCT

KIF1B shRNA Plasmid (m) is a pool of 3 target-specific lentiviral vector plasmids each encoding 19-25 nt (plus hairpin) shRNAs designed to knock down gene expression. Each plasmid contains a puromycin resistance gene for the selection of cells stably expressing shRNA. Each vial contains 20 µg of lyophilized shRNA plasmid DNA. Suitable for up to 20 transfections. Also see KIF1B siRNA (m): sc-35750 and KIF1B shRNA (m) Lentiviral Particles: sc-35750-V as alternate gene silencing products.

STORAGE AND RESUSPENSION

Store lyophilized shRNA plasmid DNA at 4° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at 4° C for short term storage or -80° C for long term storage. Avoid repeated freeze thaw cycles.

Resuspend lyophilized shRNA plasmid DNA in 200 µl of the deionized water provided. Resuspension of the shRNA plasmid DNA in 200 µl of deionized water makes a 0.1 µg/µl solution in a 10 mM Tris, 1 mM EDTA buffered solution.

APPLICATIONS

KIF1B shRNA Plasmid (m) is recommended for the inhibition of KIF1B expression in mouse cells.

SUPPORT REAGENTS

For optimal shRNA Plasmid transfection efficiency, Santa Cruz Biotechnology's shRNA Plasmid Transfection Reagent: sc-108061 (0.2 ml) and shRNA Plasmid Transfection Medium: sc-108062 (20 ml) are recommended. Control shRNAs are available as 20 µg lyophilized plasmid DNA. Each encodes a scrambled shRNA sequence that will not lead to the specific degradation of any known cellular mRNA. Control shRNA Plasmids include: sc-108060, sc-108065 and sc-108066.

GENE EXPRESSION MONITORING

KIF1B (E-12): sc-376246 is recommended as a control antibody for monitoring of KIF1B gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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) 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor KIF1B gene expression knockdown using RT-PCR Primer: KIF1B (m)-PR: sc-35750-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

The purchase of this product conveys to the buyer the nontransferable right to use the purchased amount of the product and all replicates and derivatives for research purposes conducted by the buyer in his laboratory only (whether the buyer is an academic or for-profit entity). The buyer cannot sell or otherwise transfer (a) this product (b) its components or (c) materials made using this product or its components to a third party, or otherwise use this product or its components or materials made using this product or its components for Commercial Purposes.

PROTOCOLS

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