SANTA CRUZ BIOTECHNOLOGY, INC.

KIF1B siRNA (h): sc-35749

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 KifC3. Mol. Cell. Biol. 21: 75-70.
6. Yang, H.W., et al. 2001. Genomic structure and mutational analysis of the human KIF1B gene which is homozygously deleted in neuroblastoma at chromosome 1p36.2. Oncogene 20: 5075-5083.
7. Zhao, C., et al. 2001. Charcot-Marie-Tooth disease type 2A caused by mutation in a microtubule motor KIF1Bβ. Cell 105: 587-597.
8. Online Mendelian Inheritance in Man, OMIM™. 2001. Johns Hopkins University, Baltimore, MD. MIM Number: 603060. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/

CHROMOSOMAL LOCATION

Genetic locus: KIF1B (human) mapping to 1p36.22.

PRODUCT

KIF1B siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see KIF1B shRNA Plasmid (h): sc-35749-SH and KIF1B shRNA (h) Lentiviral Particles: sc-35749-V as alternate gene silencing products.

For independent verification of KIF1B (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-35749A, sc-35749B and sc-35749C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

KIF1B siRNA (h) is recommended for the inhibition of KIF1B expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

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 (h)-PR: sc-35749-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Turan, A., et al. 2019. Autophagic degradation of lamins facilitates the nuclear egress of herpes simplex virus type 1. J. Cell Biol. 218: 508-523.

RESEARCH USE

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