

DNHD1 siRNA (m): sc-143124

BACKGROUND

Dyneins are multisubunit, high molecular weight ATPases that interact with microtubules to generate force by converting the chemical energy of ATP into the mechanical energy of movement. Cytoplasmic or axonemal Dynein heavy, intermediate, light and light-intermediate chains are all components of minus end-directed motors; the complex transports cellular cargos towards the central region of the cell. Axonemal dynein motors contain one to three non-identical heavy chains and cause a sliding of microtubules in the axonemes of cilia and flagella in a mechanism necessary for cilia to beat and propel the cell. DNHD1 (dynein heavy chain domain-containing protein 1), also known as CCDC35, DHCD1 or DNHD1L, is a 4,753 amino acid member of the dynein heavy chain protein family. Phosphorylated upon DNA damage, DNHD1 contains 12 LRR (leucine-rich repeats). The gene that encodes DNHD1 maps to human chromosome 11, which contains 135 million base pairs and 1,400 genes.

REFERENCES

1. Carson, J.L., Reed, W., Lucier, T., Brighton, L., Gambling, T.M., Huang, C.H. and Collier, A.M. 2002. Axonemal dynein expression in human fetal tracheal epithelium. *Am. J. Physiol. Lung Cell Mol. Physiol.* 282: L421-L430.
2. Jikuya, H., Takano, J., Kikuno, R., Hirosawa, M., Nagase, T., Nomura, N. and Ohara, O. 2003. Characterization of long cDNA clones from human adult spleen. II. The complete sequences of 81 cDNA clones. *DNA Res.* 10: 49-57.
3. Asai, D.J., et al. 2004. The dynein heavy chain family. *J. Eukaryot. Microbiol.* 51: 23-29.
4. Seetharam, R.N., et al. 2005. High speed sliding of axonemal microtubules produced by outer arm dynein. *Cell Motil. Cytoskeleton* 60: 96-103.
5. Lee, W.L., et al. 2005. The offloading model for dynein function: differential function of motor subunits. *J. Cell Biol.* 168: 201-207.
6. Kimura, K., Wakamatsu, A., Suzuki, Y., Ota, T., Nishikawa, T., Yamashita, R., Yamamoto, J., Sekine, M., Tsuritani, K., Wakaguri, H., Ishii, S., Sugiyama, T., Saito, K., Isono, Y., Irie, R., Kushida, N., Yoneyama, T., et al. 2006. Diversification of transcriptional modulation: large-scale identification and characterization of putative alternative promoters of human genes. *Genome Res.* 16: 55-65.
7. Matsuoka, S., Ballif, B.A., Smogorzewska, A., McDonald, E.R., Hurov, K.E., Luo, J., Bakalarski, C.E., Zhao, Z., Solimini, N., Lerenthal, Y., Shiloh, Y., Gygi, S.P. and Elledge, S.J. 2007. ATM and ATR substrate analysis reveals extensive protein networks responsive to DNA damage. *Science* 316: 1160-1166.

CHROMOSOMAL LOCATION

Genetic locus: Dnhd1 (mouse) mapping to 7 E3.

PROTOCOLS

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

PRODUCT

DNHD1 siRNA (m) is a target-specific 19-25 nt siRNA designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see DNHD1 shRNA Plasmid (m): sc-143124-SH and DNHD1 shRNA (m) Lentiviral Particles: sc-143124-V as alternate gene silencing products.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

DNHD1 siRNA (m) is recommended for the inhibition of DNHD1 expression in mouse 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 μ M in 66 μ l. 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor DNHD1 gene expression knockdown using RT-PCR Primer: DNHD1 (m)-PR: sc-143124-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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