



## DNAH2 siRNA (h): sc-93709

### 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. DNAH2 (dynein, axonemal, heavy chain 2), also known as DNAHC2, DNHD3 or KIAA1503, is a 4,427 amino acid member of the dynein heavy chain protein family. Expressed primarily in testis and trachea, DNAH2 contains five LRR repeats and five TPR repeats. DNAH2 is a force generating protein of respiratory cilia, and is thought to be involved in sperm motility through sperm flagellar assembly.

### REFERENCES

1. Chapelin, C., Duriez, B., Magnino, F., Goossens, M., Escudier, E. and Amselem, S. 1997. Isolation of several human axonemal dynein heavy chain genes: genomic structure of the catalytic site, phylogenetic analysis and chromosomal assignment. *FEBS Lett.* 412: 325-330.
2. Neesen, J., Koehler, M.R., Kirschner, R., Steinlein, C., Kreutzberger, J., Engel, W. and Schmid, M. 1997. Identification of dynein heavy chain genes expressed in human and mouse testis: chromosomal localization of an axonemal dynein gene. *Gene* 200: 193-202.
3. Milisav, I. and Affara, N.A. 1998. A potential human axonemal dynein heavy-chain gene maps to 17q25. *Mamm. Genome* 9: 404-407.
4. 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.
5. Seetharam, R.N. and Satir, P. 2005. High speed sliding of axonemal microtubules produced by outer arm dynein. *Cell Motil. Cytoskeleton* 60: 96-103.

### CHROMOSOMAL LOCATION

Genetic locus: DNAH2 (human) mapping to 17p13.1.

### PRODUCT

DNAH2 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see DNAH2 shRNA Plasmid (h): sc-93709-SH and DNAH2 shRNA (h) Lentiviral Particles: sc-93709-V as alternate gene silencing products.

For independent verification of DNAH2 (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-93709A, sc-93709B and sc-93709C.

### RESEARCH USE

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

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

### APPLICATIONS

DNAH2 siRNA (h) is recommended for the inhibition of DNAH2 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  $\mu$ M in 66  $\mu$ 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 DNAH2 gene expression knockdown using RT-PCR Primer: DNAH2 (h)-PR: sc-93709-PR (20  $\mu$ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

### PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.