SANTA CRUZ BIOTECHNOLOGY, INC.

DNAHC11 shRNA (m) Lentiviral Particles: sc-143083-V

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. 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. DNAHC11, also designated Left-right Dynein, is a microtubule-based motor protein that is thought to be involved in the normal asymmetrical left-right visceral development. Mutations in the gene encoding DNAHC11 have been linked to Kartagener syndrome, a disease characterized by immobile sperm and chronic respiratory infection. About fifty percent of Kartagener patients also present with situs inversus viscerum, which is characterized by the lateral transposition of the viscera of the thorax and abdomen.

REFERENCES

1. Chapelin, C., et al. 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. Supp, D.M., et al. 1999. Targeted deletion of the ATP binding domain of left-right dynein confirms its role in specifying development of left-right asymmetries. Development 126: 5495-5504.
3. Bartoloni, L., et al. 2002. Mutations in the DNAH11 (axonemal heavy chain dynein type 11) gene cause one form of situs inversus totalis and most likely primary ciliary dyskinesia. Proc. Natl. Acad. Sci. USA 99: 10282-10286.
4. McGrath, J., et al. 2003. Two populations of node monocilia initiate left-right asymmetry in the mouse. Cell 114: 61-73.
5. Armakolas, A. and Klar, A.J. 2007. Left-right dynein motor implicated in selective chromatid segregation in mouse cells. Science 315: 100-101.

CHROMOSOMAL LOCATION

Genetic locus: Dnahc11 (mouse) mapping to 12 F2.

PRODUCT

DNAHC11 shRNA (m) Lentiviral Particles are concentrated, transduction-ready viral particles containing a target-specific construct that encodes a 19-25 nt (plus hairpin) shRNA designed to knock down gene expression. Each vial contains 200 µl frozen stock containing 1.0 x 10^6 infectious units of virus (IFU) in Dulbecco's Modified Eagle's Medium with 25 mM HEPES pH 7.3. Suitable for 10-20 transductions. Also see DNAHC11 siRNA (m): sc-143083 and DNAHC11 shRNA Plasmid (m): sc-143083-SH as alternate gene silencing products.

STORAGE

Store lentiviral particles at -80° C. Stable for at least one year from the date of shipment. Once thawed, particles can be stored at 4° C for up to one week. Avoid repeated freeze thaw cycles.

APPLICATIONS

DNAHC11 shRNA (m) Lentiviral Particles is recommended for the inhibition of DNAHC11 expression in mouse cells.

SUPPORT REAGENTS

Control shRNA Lentiviral Particles: sc-108080. Available as 200 µl frozen viral stock containing 1.0 x 10^6 lentiviral transducing particles per milliliter; contains an shRNA construct encoding a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor DNAHC11 gene expression knockdown using RT-PCR Primer: DNAHC11 (m)-PR: sc-143083-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

BIOSAFETY

Lentiviral particles can be employed in standard Biosafety Level 2 tissue culture facilities (and should be treated with the same level of caution as with any other potentially infectious reagent). Lentiviral particles are replication-incompetent and are designed to self-inactivate after transduction and integration of shRNA constructs into genomic DNA of target cells.

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.