SANTA CRUZ BIOTECHNOLOGY, INC.

NDUFB7 siRNA (h): sc-97267

BACKGROUND

Complex 1 (also known as NADH dehydrogenase) of the electron transport chain (respiratory chain) is an enzymatic complex that catalyzes the transfer of electrons from NADH to ubiquinone. Free energy from the reaction is conserved in the transfer of protons into the intermembrane space to create an electrochemical proton gradient, a driving force for ATP synthesis. Complex 1 is a complicated, multi-protein, L-shaped complex composed of at least 45 different subunits and located in the mitochondrial inner membrane. NDUB7 (NADH dehydrogenase [ubiquinone] 1β subcomplex subunit 7), also known as NADH-ubiquinone oxioreductase B18 subunit, complex I-B18 (CI-B18) or cell adhesion protein SQM1, is a 137 amino acid accessory subunit of complex 1. Ubiquitously expressed, NDUFB7 localizes to the mitochondrial inner membrane on the matrix side. NDUFB7 contains a sevenfold repeat of positively-charged residues that may indicate a role in protein-protein interactions.

REFERENCES

1. Wong, Y.C., et al. 1990. cDNA cloning of a novel cell adhesion protein expressed in human squamous carcinoma cells. Biochem. Biophys. Res. Commun. 166: 984-992.
2. Loeffen, J.L., et al. 1998. cDNA of eight nuclear encoded subunits of NADH: ubiquinone oxidoreductase: human complex I cDNA characterization completed. Biochem. Biophys. Res. Commun. 253: 415-422.
3. Emahazion, T., et al. 1998. Intron based radiation hybrid mapping of 15 complex I genes of the human electron transport chain. Cytogenet. Cell Genet. 82: 115-119.
4. Smeitink, J., et al. 1999. Human mitochondrial complex I in health and disease. Am. J. Hum. Genet. 64: 1505-1510.
5. Triepels, R., et al. 2000. Characterization of the human complex I NDUFB7 and 17.2-kDa cDNAs and mutational analysis of 19 genes of the HP fraction in complex I-deficient-patients. Hum. Genet. 106: 385-391.
6. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 603842. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/

CHROMOSOMAL LOCATION

Genetic locus: NDUFB7 (human) mapping to 19p13.12.

PRODUCT

NDUFB7 siRNA (h) 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see NDUFB7 shRNA Plasmid (h): sc-97267-SH and NDUFB7 shRNA (h) Lentiviral Particles: sc-97267-V as alternate gene silencing products.

PROTOCOLS

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

NDUFB7 siRNA (h) is recommended for the inhibition of NDUFB7 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

NDUFB7 (F-8): sc-365552 is recommended as a control antibody for monitoring of NDUFB7 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 NDUFB7 gene expression knockdown using RT-PCR Primer: NDUFB7 (h)-PR: sc-97267-PR (20 µl). 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.