SANTA CRUZ BIOTECHNOLOGY, INC.

NDUFC2 siRNA (h): sc-96468

BACKGROUND

The multisubunit NADH:ubiquinone oxidoreductase (complex I) is the first enzyme complex in the electron transport chain of mitochondria. Through use of chaotropic agents, complex I can be separated into 3 different fractions: a flavoprotein fraction, an iron-sulfur protein (IP) fraction and a hydrophobic protein (HP) fraction. NDUFC2 (NADH dehydrogenase [ubiquinone] 1 subunit C2), also known as B14.5b or NADHDH2, is a 119 amino acid mitochondrion inner single-pass membrane protein that belongs to the complex I NDUFC2 subunit family. NDUFC2 is an accessory subunit of the mitochondrial membrane respiratory chain NADH dehydrogenase (Complex I) that is not involved in catalysis. Complex I is composed of 45 different subunits and functions in the transfer of electrons from NADH to the respiratory chain. The immediate electron acceptor for the enzyme is suggested to be ubiquinone.

REFERENCES

1. Arizmendi, J.M., et al. 1992. Complementary DNA sequences of two 14.5 kDa subunits of NADH:ubiquinone oxidoreductase from bovine heart mitochondria. Completion of the primary structure of the complex? FEBS Lett. 313: 80-84.
2. Benit, P., et al. 2001. Large-scale deletion and point mutations of the nuclear NDUFV1 and NDUFS1 genes in mitochondrial complex I deficiency. Am. J. Hum. Genet. 68: 1344-1352.
3. Smeitink, J.A., et al. 2004. Cell biological consequences of mitochondrial NADH: ubiquinone oxidoreductase deficiency. Curr. Neurovasc. Res. 1: 29-40.
4. Wang, X., et al. 2004. Duplicated Spot 14 genes in the chicken: characterization and identification of polymorphisms associated with abdominal fat traits. Gene 332: 79-88.
5. Flemming, D., et al. 2005. A possible role for iron-sulfur cluster N2 in proton translocation by the NADH: ubiquinone oxidoreductase (complex I). J. Mol. Microbiol. Biotechnol. 10: 208-222.
6. Woerner, S.M., et al. 2005. Microsatellite instability of selective target genes in HNPCC-associated colon adenomas. Oncogene 24: 2525-2535.
7. Mishmar, D., et al. 2006. Adaptive selection of mitochondrial complex I subunits during primate radiation. Gene 378: 11-18.

CHROMOSOMAL LOCATION

Genetic locus: NDUFC2 (human) mapping to 11q14.1.

PRODUCT

NDUFC2 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 NDUFC2 shRNA Plasmid (h): sc-96468-SH and NDUFC2 shRNA (h) Lentiviral Particles: sc-96468-V as alternate gene silencing products.

For independent verification of NDUFC2 (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-96468A, sc-96468B and sc-96468C.

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

NDUFC2 siRNA (h) is recommended for the inhibition of NDUFC2 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

NDUFC2 (G-9): sc-398719 is recommended as a control antibody for monitoring of NDUFC2 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 (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use goat anti-mouse IgG-FITC: sc-2010 (dilution range: 1:100-1:400) or goat anti-mouse IgG-TR: sc-2781 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor NDUFC2 gene expression knockdown using RT-PCR Primer: NDUFC2 (h)-PR: sc-96468-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.