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SANTA CRUZ BIOTECHNOLOGY, INC.

NDUFA10 siRNA (m): sc-149867

BACKGROUND

NDUFA10 (NADH dehydrogenase (ubiquinone) 1 α subcomplex, 10), also known as CI-42KD, is a 355 amino acid protein that localizes to the mitochondrial matrix and functions as an accessory subunit of the mitochondrial membrane respiratory chain NADH dehydrogenase complex I. Complex I plays an important role in the transfer of electrons from NADH to the respiratory chain, a process that is essential for cellular respiration. NDUFA10 uses FAD as a cofactor and works in conjunction with other proteins to mediate complex I function and to ensure the proper transfer of electrons within the respiratory chain. The gene encoding NDUFA10 maps to human chromosome 2, which houses over 1,400 genes and comprises nearly 8% of the human genome. Harlequin icthyosis, a rare and morbid skin deformity, is associated with mutations in the ABCA12 gene, while the lipid metabolic disorder sitosterolemia is associated with defects in the ABCG5 and ABCG8 genes. Additionally, an extremely rare recessive genetic disorder, Alström syndrome, is caused by mutations in the ALMS1 gene, which maps to chromosome 2.

REFERENCES

1. Baens, M., et al. 1993. Construction and evaluation of a hncDNA library of human 12p transcribed sequences derived from a somatic cell hybrid. Genomics 16: 214-218.
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. Smeitink, J. and van den Heuvel, L. 1999. Human mitochondrial complex I in health and disease. Am. J. Hum. Genet. 64: 1505-1510.
4. Schilling, B., et al. 2005. Mass spectrometric identification of a novel phosphorylation site in subunit NDUFA10 of bovine mitochondrial complex I. FEBS Lett. 579: 2485-2490.
5. Pocsfalvi, G., et al. 2007. Phosphorylation of B14.5α subunit from bovine heart complex I identified by titanium dioxide selective enrichment and shotgun proteomics. Mol. Cell. Proteomics 6: 231-237.

CHROMOSOMAL LOCATION

Genetic locus: Ndufa10 (mouse) mapping to 1 D.

PRODUCT

NDUFA10 siRNA (m) 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 NDUFA10 shRNA Plasmid (m): sc-149867-SH and NDUFA10 shRNA (m) Lentiviral Particles: sc-149867-V as alternate gene silencing products.

For independent verification of NDUFA10 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-149867A, sc-149867B and sc-149867C.

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

NDUFA10 siRNA (m) is recommended for the inhibition of NDUFA10 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 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

NDUFA10 (A-8): sc-376357 is recommended as a control antibody for monitoring of NDUFA10 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 NDUFA10 gene expression knockdown using RT-PCR Primer: NDUFA10 (m)-PR: sc-149867-PR (20 µl, 482 bp). 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.