SANTA CRUZ BIOTECHNOLOGY, INC.

NDUFAF1 siRNA (h): sc-90256

BACKGROUND

NDUFAF1 (NADH dehydrogenase (ubiquinone) 1 α subcomplex assembly factor 1), also known as CIA30 (complex I intermediate-associated protein 30, mitochondrial) or CGI-65, is a 327 amino acid mitochondrial protein that is ubiquitously expressed and belongs to the CIA30 family. The largest multi-protein enzyme of the oxidative phosphorylation (OXPHOS) system, NDUFAF1 functions as a chaperone protein that is involved in the assembly of the mitochondrial NADH ubiquinone oxidoreductase 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. NDUFAF1 is a crucial component in the early assembly of complex I and mutations in its gene can cause mitochondrial disease.

REFERENCES

1. Ton, C., et al. 1997. Identification and primary structure of five human NADH-ubiquinone oxidoreductase subunits. Biochem. Biophys. Res. Commun. 241: 589-594.
2. Janssen, R., et al. 2002. CIA30 complex I assembly factor: a candidate for human complex I deficiency? Hum. Genet. 110: 264-270.
3. Vogel, R.O., et al. 2005. Human mitochondrial complex I assembly is mediated by NDUFAF1. FEBS J. 272: 5317-5326.
4. Janssen, R.J., et al. 2006. Mitochondrial complex I: structure, function and pathology. J. Inherit. Metab. Dis. 29: 499-515.
5. Dunning, C.J., et al. 2007. Human CIA30 is involved in the early assembly of mitochondrial complex I and mutations in its gene cause disease. EMBO J. 26: 3227-3237.
6. Vogel, R.O., et al. 2007. Human mitochondrial complex I assembly: a dynamic and versatile process. Biochim. Biophys. Acta 1767: 1215-1227.
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CHROMOSOMAL LOCATION

Genetic locus: NDUFAF1 (human) mapping to 15q15.1.

PRODUCT

NDUFAF1 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 NDUFAF1 shRNA Plasmid (h): sc-90256-SH and NDUFAF1 shRNA (h) Lentiviral Particles: sc-90256-V as alternate gene silencing products.

For independent verification of NDUFAF1 (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-90256A, sc-90256B and sc-90256C.

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

NDUFAF1 siRNA (h) is recommended for the inhibition of NDUFAF1 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor NDUFAF1 gene expression knockdown using RT-PCR Primer: NDUFAF1 (h)-PR: sc-90256-PR (20 µl, 584 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.