SANTA CRUZ BIOTECHNOLOGY, INC.

COX7a1 siRNA (h): sc-97690

BACKGROUND

The cytochrome c oxidase (COX) family of proteins function as the final electron donor in the respiratory chain to drive a proton gradient across the inner mitochondrial membrane, ultimately resulting in the production of water and ATP. The mammalian COX apoenzyme is a dimer, with each monomer consisting of 13 subunits, some of which are mitochondrial and some of which are nuclear. COX7a1 (cytochrome c oxidase subunit VIIa polypeptide 1) is an 79 amino acid protein that localizes to the inner mitochondrial membrane and exists as a component of the COX complex, playing an important role in electron transport. Expression of COX7a1 is specific to heart and skeletal muscle. The gene encoding COX7a1 lies within the FXYD5-COX7A1 region of human chromosome 19, which is used as a model to study DNA methylation.

REFERENCES

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2. Arnaudo, E., et al. 1992. Tissue-specific expression and chromosome assignment of genes specifying two isoforms of subunit VIIa of human cytochrome c oxidase. Gene 119: 299-305.
3. Taanman, J.W., et al. 1993. Tissue distribution of cytochrome c oxidase isoforms in mammals. Characterization with monoclonal and polyclonal antibodies. Biochim. Biophys. Acta 1225: 95-100.
4. Merante, F., et al. 1997. Chromosomal localization of the human liver form cytochrome c oxidase subunit VIIa gene. Genome 40: 318-324.
5. Lenka, N., et al. 1998. Structural organization and transcription regulation of nuclear genes encoding the mammalian cytochrome c oxidase complex. Prog. Nucleic Acid Res. Mol. Biol. 61: 309-344.
6. Drögemüller, C., et al. 2001. Molecular characterization and chromosome assignment of the porcine gene COX7A1 coding for the muscle specific cytochrome c oxidase subunit VIIa-M. Cytogenet. Cell Genet. 94: 190-193.
7. Didych, D.A., et al. 2009. Identification and mapping of ten new potential insulators in the FXYD5-COX7A1 region of human chromosome 19q13.12. Biochemistry 74: 728-733.
8. Skvortsova, Y.V., et al. 2009. Studies on functional role of DNA methylation within the FXYD5-COX7A1 region of human chromosome 19. Biochemistry 74: 874-881.

CHROMOSOMAL LOCATION

Genetic locus: COX7A1 (human) mapping to 19q13.1.

PRODUCT

COX7a1 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 COX7a1 shRNA Plasmid (h): sc-97690-SH and COX7a1 shRNA (h) Lentiviral Particles: sc-97690-V as alternate gene silencing 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

COX7a1 siRNA (h) is recommended for the inhibition of COX7a1 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 COX7a1 gene expression knockdown using RT-PCR Primer: COX7a1 (h)-PR: sc-97690-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.

PROTOCOLS

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