SANTA CRUZ BIOTECHNOLOGY, INC.

COQ4 siRNA (m): sc-72976

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Coenzyme Q (CoQ), also referred to as ubiquinone, is a fat-soluble component of the electron transport chain that participates in aerobic cellular respiration within mitochondria and is essential for ATP-dependent energy production. CoQ consists of a hydrophobic isoprenoid tail, which anchors it to the membrane, and a quinone head group, which is responsible for the activity of CoQ in the respiratory chain. CoQ biosynthesis requires the formation of a multi-subunit enzyme complex, composed of COQ1 through COQ10, which is highly characterized in yeast. COQ4 is a 265 amino acid protein that is ubiquitously expressed with highest levels found in liver, lung and pancreas. In humans, COQ4 protein has no known enzymatic function, but may function as a core component of multi-subunit complex required for COQ biosynthesis.

REFERENCES

1. Belogrudov, G.I., et al. 2001. Yeast COQ4 encodes a mitochondrial protein required for coenzyme Q synthesis. Arch. Biochem. Biophys. 392: 48-58.
2. Marbois, B., et al. 2005. Coq3 and Coq4 define a polypeptide complex in yeast mitochondria for the biosynthesis of coenzyme Q. J. Biol. Chem. 280: 20231-20238.
3. Zeviani, M., et al. 2007. Mitochondrial disorders. Curr. Opin. Neurol. 20: 564-571.
4. Casarin, A., et al. 2008. Functional characterization of human COQ4, a gene required for Coenzyme Q10 biosynthesis. Biochem. Biophys. Res. Commun. 372: 35-39.
5. Marbois, B., et al. 2009. The yeast Coq4 polypeptide organizes a mitochondrial protein complex essential for coenzyme Q biosynthesis. Biochim. Biophys. Acta 1791: 69-75.
6. Kawamukai, M. 2009. Biosynthesis and bioproduction of coenzyme Q10 by yeasts and other organisms. Biotechnol. Appl. Biochem. 53: 217-226.

CHROMOSOMAL LOCATION

Genetic locus: Coq4 (mouse) mapping to 2 B.

PRODUCT

COQ4 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 COQ4 shRNA Plasmid (m): sc-72976-SH and COQ4 shRNA (m) Lentiviral Particles: sc-72976-V as alternate gene silencing products.

For independent verification of COQ4 (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-72976A, sc-72976B and sc-72976C.

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

COQ4 siRNA (m) is recommended for the inhibition of COQ4 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor COQ4 gene expression knockdown using RT-PCR Primer: COQ4 (m)-PR: sc-72976-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.