

COQ7 siRNA (h): sc-62146

BACKGROUND

COQ7, a timing protein CLK-1 homolog, is a 217 amino acid protein encoded by the mouse gene *Coq7*. It is believed that COQ7/CLK-1 is required for the biosynthesis of Coenzyme Q (COQ), an essential co-factor in mitochondrial respiration. In yeast, mutation of the COQ7 gene results in the absence of UQ biosynthesis and demonstrates a role for this gene in the step leading to the hydroxylation of 5-demethoxyubiquinone. COQ7 may also be responsible for maintenance of mitochondrial integrity and neurogenesis. COQ7 is highly expressed in tissues with high energy demand such as heart, muscle, liver and kidney. After transcription, COQ7 is targeted to the mitochondria where it is processed to its mature form. The protein similarities and the conservation of function of the CLK-1/CLK-1/COQ7 gene products suggest a potential link between the production of ubiquinone and aging.

REFERENCES

1. Vajo, Z., et al. 2000. Conservation of the *Caenorhabditis elegans* timing gene *clk-1* from yeast to human: a gene required for ubiquinone biosynthesis with potential implications for aging. *Mamm. Genome* 10: 1000-1004.
2. Stenmark, P., et al. 2001. A new member of the family of di-iron carboxylate proteins. COQ7 (CLK-1), a membrane-bound hydroxylase involved in ubiquinone biosynthesis. *J. Biol. Chem.* 276: 33297-33300.
3. Levavasseur, F., et al. 2001. Ubiquinone is necessary for mouse embryonic development but is not essential for mitochondrial respiration. *J. Biol. Chem.* 276: 46160-46164.
4. Takahashi, M., et al. 2001. Mouse *Coq7/Clk-1* orthologue rescued slowed rhythmic behavior and extended life span of *Clk-1* longevity mutant in *Caenorhabditis elegans*. *Biochem. Biophys. Res. Commun.* 286: 534-540.
5. Nakai, D., et al. 2001. Mouse homologue of *Coq7/Clk-1*, longevity gene in *Caenorhabditis elegans*, is essential for coenzyme Q synthesis, maintenance of mitochondrial integrity, and neurogenesis. *Biochem. Biophys. Res. Commun.* 289: 463-471.

CHROMOSOMAL LOCATION

Genetic locus: COQ7 (human) mapping to 16p12.3.

PRODUCT

COQ7 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see COQ7 shRNA Plasmid (h): sc-62146-SH and COQ7 shRNA (h) Lentiviral Particles: sc-62146-V as alternate gene silencing products.

For independent verification of COQ7 (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-62146A, sc-62146B and sc-62146C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

COQ7 siRNA (h) is recommended for the inhibition of COQ7 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 μ M in 66 μ l. 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

COQ7 (F-9): sc-376484 is recommended as a control antibody for monitoring of COQ7 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 COQ7 gene expression knockdown using RT-PCR Primer: COQ7 (h)-PR: sc-62146-PR (20 μ l). 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.