

COQ9 siRNA (h): sc-72977

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. COQ9 (coenzyme Q9 homolog) is a 318 amino acid protein that localizes to the mitochondrion and is involved in the synthesis of coenzyme Q. Multiple isoforms of COQ9 exist due to alternative splicing events. The gene encoding COQ9 maps to human chromosome 16, which encodes over 900 genes and comprises nearly 3% of the human genome. The GAN gene is located on chromosome 16 and, with mutation, may lead to giant axonal neuropathy, a nervous system disorder characterized by increasing malfunction with growth. The rare disorder Rubinstein-Taybi syndrome is also associated with chromosome 16, as is Crohn's disease, which is a gastrointestinal inflammatory condition.

REFERENCES

1. Tang, P.H., et al. 2004. Redox cycling of coenzyme Q9 as a new measure of plasma reducing power. *Clin. Chem.* 50: 1930-1932.
2. Starkov, A.A., et al. 2004. Mitochondrial α -ketoglutarate dehydrogenase complex generates reactive oxygen species. *J. Neurosci.* 24: 7779-7788.
3. Johnson, A., et al. 2005. COQ9, a new gene required for the biosynthesis of coenzyme Q in *Saccharomyces cerevisiae*. *J. Biol. Chem.* 280: 31397-31404.
4. Molyneux, S., et al. 2007. Plasma total coenzyme Q9 (CoQ9) in the New Zealand population: reference interval and biological variation. *Clin. Chem.* 53: 802-803.

CHROMOSOMAL LOCATION

Genetic locus: COQ9 (human) mapping to 16q21.

PRODUCT

COQ9 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 COQ9 shRNA Plasmid (h): sc-72977-SH and COQ9 shRNA (h) Lentiviral Particles: sc-72977-V as alternate gene silencing products.

For independent verification of COQ9 (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-72977A, sc-72977B and sc-72977C.

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

COQ9 siRNA (h) is recommended for the inhibition of COQ9 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

COQ9 (G-4): sc-365073 is recommended as a control antibody for monitoring of COQ9 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 COQ9 gene expression knockdown using RT-PCR Primer: COQ9 (h)-PR: sc-72977-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Yen, H.C., et al. 2016. Disruption of the human COQ5-containing protein complex is associated with diminished coenzyme Q10 levels under two different conditions of mitochondrial energy deficiency. *Biochim. Biophys. Acta* 1860: 1864-1876.
2. Yen, H.C., et al. 2020. Characterization of human mitochondrial PDSS and COQ proteins and their roles in maintaining coenzyme Q10 levels and each other's stability. *Biochim. Biophys. Acta Bioenerg.* E-published.

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.