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SZABO-SCANDIC Handels GmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

mail@szabo-scandic.com

www.szabo-scandic.com

[linkedin.com/company/szaboscandic](https://www.linkedin.com/company/szaboscandic)



cytochrome c1 siRNA (m): sc-142761

BACKGROUND

Cytochrome c1 is a component of the ubiquinol-cytochrome c reductase complex, which is a respiratory chain that generates an electrochemical potential, coupled to ATP synthesis. Specifically, cytochrome c transfers electrons from the cytochrome bc1 complex to cytochrome c oxidase by transiently binding to the complex. The bc1 complex contains 11 subunits: 3 respiratory subunits (cytochrome b, cytochrome c1 and Rieske/UQCRC1), 2 core proteins (UQCRC1/QCR1 and UQCRC2/QCR2) and 6 low-molecular weight proteins (UQCRH/QCR6, UQCRB/QCR7, UQCRC/QCR8, UQCR10/QCR9, UQCR11/QCR10 and a cleavage product of Rieske/UQCRC1). Cytochrome c1 binds one heme per subunit as a result of a mutation-induced collapse of the di-heme cytochrome structure. The cytochrome c1 gene is thought to be regulated by E2F and Sp1 transcription factors.

REFERENCES

1. Nishikimi, M., et al. 1987. Isolation of a cDNA clone for human cytochrome c1 from a lambda gt11 expression library. *Biochem. Biophys. Res. Commun.* 145: 34-39.
2. Suzuki, H., et al. 1990. Common protein-binding sites in the 5'-flanking regions of human genes for cytochrome c1 and ubiquinone-binding protein. *J. Biol. Chem.* 265: 8159-8163.
3. Duncan, A.M., et al. 1994. Assignment of the gene for the cytochrome c1 subunit of the mitochondrial cytochrome bc1 complex (CYC1) to human chromosome 8q24.3. *Genomics* 19: 400-401.
4. Li, R., et al. 1996. Expression of the human cytochrome c1 gene is controlled through multiple Sp1-binding sites and an initiator region. *Eur. J. Biochem.* 241: 649-656.
5. Zhang, Z., et al. 1998. Electron transfer by domain movement in cytochrome bc1. *Nature* 392: 677-684.
6. Luciakova, K., et al. 2000. Activity of the human cytochrome c1 promoter is modulated by E2F. *Biochem. J.* 351: 251-256.

CHROMOSOMAL LOCATION

Genetic locus: *Cyc1* (mouse) mapping to 15 D3.

PRODUCT

cytochrome c1 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see cytochrome c1 shRNA Plasmid (m): sc-142761-SH and cytochrome c1 shRNA (m) Lentiviral Particles: sc-142761-V as alternate gene silencing products.

For independent verification of cytochrome c1 (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-142761A, sc-142761B and sc-142761C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

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

cytochrome c1 siRNA (m) is recommended for the inhibition of cytochrome c1 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 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

cytochrome c1 (A-5): sc-514435 is recommended as a control antibody for monitoring of cytochrome c1 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 cytochrome c1 gene expression knockdown using RT-PCR Primer: cytochrome c1 (m)-PR: sc-142761-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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