SANTA CRUZ BIOTECHNOLOGY, INC.

# UQCRC1 siRNA (m): sc-72155

## BACKGROUND

UQCRC1, or ubiquinol-cytochrome c reductase complex core protein 1, is a core subunit of the mitochondrial respiratory complex III. It is the largest nuclear encoded subunit of the complex. UQCRC1 plays a key role in mitochondria-to-nucleus retrograde response and is involved in the mitochondrial proton gradient formation. It has also shown to interact with Nogo, an inhibitor of neurite growth after spinal cord injury. UQCRC1 has been found at high expression levels in breast and ovarian tumors, positively correlating with Cox-2 expression. Transcription of UQCRC1 is repressed by the nuclear protein methyl-CpG-binding protein-2 (MeCP2). A mutation in the gene for MeCP2 (associated with Rett syndrome) can result in the overexpression of UQCRC1, leading to increased activity of complex III.

## REFERENCES


1. Hoffman, G.G., et al. 1993. Complete coding sequence, intron/exon organization and chromosomal location of the gene for the core I protein of human ubiquinol-cytochrome c reductase. J. Biol. Chem. 268: 21113-21119.
2. Islam, M.M., et al. 1994. A complete cDNA sequence for core I protein subunit of human ubiquinol-cytochrome c reductase. Biochem. Mol. Biol. Int. 32: 797-805.
3. Valnot, I., et al. 1999. A mitochondrial cytochrome b mutation but no mutations of nuclearly encoded subunits in ubiquinol-cytochrome c reductase (complex III) deficiency. Hum. Genet. 104: 460-466.
4. Hu, W.H., et al. 2002. Identification and characterization of a novel Nogo-interacting mitochondrial protein (NIMP). J. Neurochem. 81: 36-45.
5. Wen, J.J. and Garg, N. 2004. Oxidative modification of mitochondrial respiratory complexes in response to the stress of *Trypanosoma cruzi* infection. Free Radic. Biol. Med. 37: 2072-2081.
6. Titeux, M., et al. 2006. Recessive dystrophic epidermolysis bullosa caused by COL7A1 hemizygosity and a missense mutation with complex effects on splicing. Hum. Mutat. 27: 291-292.
7. Kriaucionis, S., et al. 2006. Gene expression analysis exposes mitochondrial abnormalities in a mouse model of Rett syndrome. Mol. Cell. Biol. 26: 5033-5042.


## CHROMOSOMAL LOCATION

Genetic locus: Uqcrc1 (mouse) mapping to 9 F2.

## PRODUCT

UQCRC1 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 UQCRC1 shRNA Plasmid (m): sc-72155-SH and UQCRC1 shRNA (m) Lentiviral Particles: sc-72155-V as alternate gene silencing products.

For independent verification of UQCRC1 (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-72155A, sc-72155B and sc-72155C.

## 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

UQCRC1 siRNA (m) is recommended for the inhibition of UQCRC1 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 UQCRC1 gene expression knockdown using RT-PCR Primer: UQCRC1 (m)-PR: sc-72155-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS


1. Huang, S., et al. 2016. 2,2',4,4'-tetrabromodiphenyl ether injures cell viability and mitochondrial function of mouse spermatocytes by decreasing mitochondrial proteins Atp5b and UQCRC1. Environ. Toxicol. Pharmacol. 46: 301-310.
2. Tao, J., et al. 2024. Phosphoglycerate mutase 5 exacerbates alcoholic cardiomyopathy in male mice by inducing prohibitin-2 dephosphorylation and impairing mitochondrial quality control. Clin. Transl. Med. 14: e1806.


## 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.