SANTA CRUZ BIOTECHNOLOGY, INC.

# PDSS1 siRNA (h): sc-62769

## BACKGROUND

PDSS1, decaprenyl-diphosphate synthase subunit 1, is a magnesium binding peptide that belongs to the FPP/GGPP synthetase family. Forming a heterotetramer that consists of two DPS1/TPRT and two DLP1 subunits, decaprenyl-diphosphate synthase functions to supply decaprenyl diphosphate, which is the precursor for the side chains of the isoprenoid quinones ubiquinone-10. Limited expression or defects of PDSS1 can lead to a coenzyme Q10 deficiency which can be manifested by several phenotypes. Coenzyme Q10 (CoQ10) deficiencies can lead to reduced ATP synthesis and result in marked cerebellar atrophy and pure myopathy. CoQ10 deficiencies has also been associated with reversible renal diseases and infantile multisystemic and cerebellar ataxia.

## REFERENCES


1. Park, Y.C., et al. 2005. Batch and fed-batch production of coenzyme Q10 in recombinant *Escherichia coli* containing the decaprenyl diphosphate synthase gene from *Gluconobacter* suboxydans. Appl. Microbiol. Biotechnol. 67: 192-196.
2. Saiki, R., et al. 2005. Characterization of solanesyl and decaprenyl diphosphate synthases in mice and humans. FEBS J. 272: 5606-5622.
3. Takahashi, S., et al. 2006. Metabolic engineering of coenzyme Q by modification of isoprenoid side chain in plant. FEBS Lett. 580: 955-959.
4. Zahiri, H.S., et al. 2006. Coenzyme Q10 production in recombinant *Escherichia coli* strains engineered with a heterologous decaprenyl diphosphate synthase gene and foreign mevalonate pathway. Metab. Eng. 8: 406-416.
5. Mollet, J., et al. 2007. Prenyldiphosphate synthase, subunit 1 (PDSS1) and OH-benzoate polyprenyltransferase (COQ2) mutations in ubiquinone deficiency and oxidative phosphorylation disorders. J. Clin. Invest. 117: 765-772.
6. Seo, M.J., et al. 2007. Increase of CoQ10 production level by the coexpression of decaprenyl diphosphate synthase and 1-deoxy-D-xylulose 5-phosphate synthase isolated from *Rhizobium* radiobacter ATCC 4718 in recombinant *Escherichia coli*. J. Microbiol. Biotechnol. 17: 1045-1048.


## CHROMOSOMAL LOCATION

Genetic locus: PDSS1 (human) mapping to 10p12.1.

## PRODUCT

PDSS1 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PDSS1 shRNA Plasmid (h): sc-62769-SH and PDSS1 shRNA (h) Lentiviral Particles: sc-62769-V as alternate gene silencing products.

For independent verification of PDSS1 (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-62769A, sc-62769B and sc-62769C.

## 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

PDSS1 siRNA (h) is recommended for the inhibition of PDSS1 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 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.

## GENE EXPRESSION MONITORING

PDSS1 (C-8): sc-518218 is recommended as a control antibody for monitoring of PDSS1 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 PDSS1 gene expression knockdown using RT-PCR Primer: PDSS1 (h)-PR: sc-62769-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.

## PROTOCOLS

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