



# CYB5R2 siRNA (h): sc-96980

## BACKGROUND

NADH-cytochrome b5 reductases participate in a variety of physiological processes including biosynthesis of cholesterol, methemoglobin reduction of erythrocytes, elongation of fatty acids and metabolism of drugs. CYB5R2 (cytochrome b5 reductase 2), also known as B5R.2, is a 276 amino acid protein that contains one FAD-binding FR-type domain and belongs to the flavo-protein pyridine nucleotide cytochrome reductase family. Existing as two alternatively spliced isoforms, CYB5R2 reduces 2-[4-iodophenyl]-3-[4-nitrophenyl]-5-[2,4-disulphophenyl]-2H tetrazolium monosodium salt and lucigenin in spermatozoa, which results in NADH-dependent lucigenin chemiluminescence. CYB5R2 binds FAD as a cofactor and is encoded by a gene located on human chromosome 11, which houses over 1,400 genes and comprises nearly 4% of the human genome. Jervell and Lange-Nielsen syndrome, Jacobsen syndrome and Smith-Lemli-Opitz syndrome are associated with defects in genes that maps to chromosome 11.

## REFERENCES

1. Villalba, J.M., et al. 1997. Role of cytochrome b5 reductase on the antioxidant function of coenzyme Q in the plasma membrane. *Mol. Aspects Med.* 18: S7-S13.
2. Zhu, H., et al. 1999. Identification of a cytochrome b-type NAD(P)H oxidoreductase ubiquitously expressed in human cells. *Proc. Natl. Acad. Sci. USA* 96: 14742-14747.
3. Jira, P.E., et al. 2003. Smith-Lemli-Opitz syndrome and the DHCR7 gene. *Ann. Hum. Genet.* 67: 269-280.
4. Baker, M.A., et al. 2005. Identification of cytochrome-b5 reductase as the enzyme responsible for NADH-dependent lucigenin chemiluminescence in human spermatozoa. *Biol. Reprod.* 73: 334-342.
5. Siem, G., et al. 2008. Jervell and Lange-Nielsen syndrome in Norwegian children: aspects around cochlear implantation, hearing, and balance. *Ear Hear.* 29: 261-269.
6. Coldren, C.D., et al. 2009. Chromosomal microarray mapping suggests a role for BSX and Neurogranin in neurocognitive and behavioral defects in the 11q terminal deletion disorder (Jacobsen syndrome). *Neurogenetics* 10: 89-95.

## CHROMOSOMAL LOCATION

Genetic locus: CYB5R2 (human) mapping to 11p15.4.

## PRODUCT

CYB5R2 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see CYB5R2 shRNA Plasmid (h): sc-96980-SH and CYB5R2 shRNA (h) Lentiviral Particles: sc-96980-V as alternate gene silencing products.

For independent verification of CYB5R2 (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-96980A, sc-96980B and sc-96980C.

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

## APPLICATIONS

CYB5R2 siRNA (h) is recommended for the inhibition of CYB5R2 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  $\mu$ M in 66  $\mu$ 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.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor CYB5R2 gene expression knockdown using RT-PCR Primer: CYB5R2 (h)-PR: sc-96980-PR (20  $\mu$ 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.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.