SANTA CRUZ BIOTECHNOLOGY, INC.

RDH10 siRNA (h): sc-76376

BACKGROUND

RDH10 (retinol dehydrogenase 10) is a 341 amino acid single-pass membrane protein that belongs to the short-chain dehydrogenases/reductases (SDR) family. RDH10 generates all-*trans* retinal from all-*trans* retinol and may plan an important role in the photic visual cycle. It is suggested that RDH10 is essential for generating retinoic acid at early embryonic stages. It is also suggested that the size of the residue at position 197 is critical for the activity of RDH10. RDH10 shares 100% and 98.6% amino acid identity with the bovine and murine Rdh10 proteins, respectively. RDH10 physically interacts with CRALBP and RPE65 in RPE cells. RDH10 is detected in retina, kidney, liver, small intestine, placenta, lung, heart and skeletal muscle. The RDH10 gene is conserved in chimpanzee, canine, bovine, mouse, rat, chicken and zebrafish, and maps to human chromosome 8q21.11.

REFERENCES

1. Wu, B.X., et al. 2002. Cloning and characterization of a novel all-*trans* retinol short-chain dehydrogenase/reductase from the RPE. Invest. Ophthalmol. Vis. Sci. 43: 3365-3372.
2. Picozzi, P., et al. 2003. Genomic organization and transcription of the human retinol dehydrogenase 10 (RDH10) gene. FEBS Lett. 554: 59-66.
3. Online Mendelian Inheritance in Man, OMIM™. 2003. Johns Hopkins University, Baltimore, MD. MIM Number: 607599. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Sénéchal, A., et al. 2006. Screening genes of the retinoid metabolism: novel LRAT mutation in leber congenital amaurosis. Am. J. Ophthalmol. 142: 702-704.
5. Rossi, E., et al. 2007. Forced expression of RDH10 gene retards growth of Hep G2 cells. Cancer Biol. Ther. 6: 238-244.
6. Sandell, L.L., et al. 2007. RDH10 is essential for synthesis of embryonic retinoic acid and is required for limb, craniofacial, and organ development. Genes Dev. 21: 1113-1124.
7. Belyaeva, O.V., et al. 2008. Kinetic analysis of human enzyme RDH10 defines the characteristics of a physiologically relevant retinol dehydrogenase. J. Biol. Chem. 283: 20299-20308.

CHROMOSOMAL LOCATION

Genetic locus: RDH10 (human) mapping to 8q21.11.

PRODUCT

RDH10 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 RDH10 shRNA Plasmid (h): sc-76376-SH and RDH10 shRNA (h) Lentiviral Particles: sc-76376-V as alternate gene silencing products.

For independent verification of RDH10 (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-76376A, sc-76376B and sc-76376C.

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

RDH10 siRNA (h) is recommended for the inhibition of RDH10 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

RDH10 (F-6): sc-514121 is recommended as a control antibody for monitoring of RDH10 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 RDH10 gene expression knockdown using RT-PCR Primer: RDH10 (h)-PR: sc-76376-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.