SANTA CRUZ BIOTECHNOLOGY, INC.

RDH5 siRNA (m): sc-76381

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Retinol dehydrogenase 5 (RDH5), also known as 11-*cis* retinol dehydrogenase (11-*cis* RDH) or RDH1, is a 318 amino acid protein belonging to the short-chain dehydrogenases/reductases (SDR) family. Highly expressed in the retinal pigment epithelium and localized to the membrane, RDH5 catalyzes the final step in the biosynthesis of 11-*cis* retinal (11-*cis* retinaldehyde), the universal chromophore of visual pigment, from all-*trans* retinol (vitamin A). RDH5 has been shown to be active in the presence of NAD as a cofactor, but not in the presence of NADP. Mutations in the gene encoding RDH5 lead to fundus albipunctatus (FA), a rare form of stationary night blindness characterized by delay in the regeneration of cone and rod photopigments.

REFERENCES

1. Yamamoto, H., et al. 1999. Mutations in the gene encoding 11-*cis* retinol dehydrogenase cause delayed dark adaptation and fundus albipunctatus. Nat. Genet. 22: 188-191.
2. Online Mendelian Inheritance in Man, OMIM™. 2004. Johns Hopkins University, Baltimore, MD. MIM Number: 601617. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Hayashi, T., et al. 2006. Compound heterozygous RDH5 mutations in familial fleck retina with night blindness. Acta Ophthalmol. Scand. 84: 254-258.
4. Maeda, A., et al. 2006. Aberrant metabolites in mouse models of congenital blinding diseases: formation and storage of retinyl esters. Biochemistry 45: 4210-4219.
5. Maeda, A., et al. 2006. Improvement in rod and cone function in mouse model of Fundus albipunctatus after pharmacologic treatment with 9-*cis*-retinal. Invest. Ophthalmol. Vis. Sci. 47: 4540-4546.
6. Humbert, G., et al. 2006. Homozygous deletion related to Alu repeats in RLBP1 causes retinitis punctata albescens. Invest. Ophthalmol. Vis. Sci. 47: 4719-4724.

CHROMOSOMAL LOCATION

Genetic locus: Rdh5 (mouse) mapping to 10 D3.

PRODUCT

RDH5 siRNA (m) is a pool of 2 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 RDH5 shRNA Plasmid (m): sc-76381-SH and RDH5 shRNA (m) Lentiviral Particles: sc-76381-V as alternate gene silencing products.

For independent verification of RDH5 (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-76381A and sc-76381B.

PROTOCOLS

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

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

RDH5 siRNA (m) is recommended for the inhibition of RDH5 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 RDH5 gene expression knockdown using RT-PCR Primer: RDH5 (m)-PR: sc-76381-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.