SANTA CRUZ BIOTECHNOLOGY, INC.

RDH12 siRNA (m): sc-76379

BACKGROUND

Retinol dehydrogenase 12 (RDH12), also known as all-*trans* and 9-*cis* retinol dehydrogenase, LCA3, LCA13 or SDR7C2, is a 316 amino acid protein belonging to the short-chain dehydrogenases/reductases (SDR) family. Widely expressed, mostly in eye, kidney, brain, skeletal muscle and stomach, RDH12 exhibits an oxidoreductive catalytic activity towards retinoids. RDH12 is an efficient NADPH-dependent retinal reductase and displays high activity toward 9-*cis* and all-*trans*-retinol. RDH12 is involved in the metabolism of short-chain aldehydes and may be a key enzyme in the formation of 11-*cis*-retinal from 11-*cis*-retinol during regeneration of the cone visual pigments. Leber congenital amaurosis (LCA) type 3, an inherited autosomal recessive retinal disease, has been associated with defects of RDH12. LCA represents the most common genetic cause of congenital visual impairment in infants and children.

REFERENCES

1. Yzer, S., et al. 2006. Microarray-based mutation detection and phenotypic characterization of patients with Leber congenital amaurosis. Invest. Ophthalmol. Vis. Sci. 47: 1167-1176.
2. Lippmann, T., et al. 2006. Indirect exclusion of four candidate genes for generalized progressive retinal atrophy in several breeds of dogs. J. Negat. Results Biomed. 5: 19.
3. Maeda, A., et al. 2006. Retinol dehydrogenase (RDH12) protects photoreceptors from light-induced degeneration in mice. J. Biol. Chem. 281: 37697-37704.
4. Jacobson, S.G., et al. 2007. RDH12 and RPE65, visual cycle genes causing leber congenital amaurosis, differ in disease expression. Invest. Ophthalmol. Vis. Sci. 48: 332-338.
5. Schuster, A., et al. 2007. The phenotype of early-onset retinal degeneration in persons with RDH12 mutations. Invest. Ophthalmol. Vis. Sci. 48: 1824-1831.

CHROMOSOMAL LOCATION

Genetic locus: Rdh12 (mouse) mapping to 12 C3.

PRODUCT

RDH12 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 RDH12 shRNA Plasmid (m): sc-76379-SH and RDH12 shRNA (m) Lentiviral Particles: sc-76379-V as alternate gene silencing products.

For independent verification of RDH12 (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-76379A, sc-76379B and sc-76379C.

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

RDH12 siRNA (m) is recommended for the inhibition of RDH12 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 RDH12 gene expression knockdown using RT-PCR Primer: RDH12 (m)-PR: sc-76379-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.