SANTA CRUZ BIOTECHNOLOGY, INC.

RDH13 siRNA (h): sc-97134

BACKGROUND

RDH13 (retinol dehydrogenase 13), also known as all-*trans* and 9-*cis* retinol dehydrogenase 13 or SDR7C3, is a 331 amino acid mitochondrial protein belonging to the short-chain dehydrogenases/reductases (SDR) family. Widely expressed, mostly in eye, pancreas, placenta and lung, RDH13 localizes on the outer side of the inner mitochondrial membrane. Related to microsomal retinoid oxidoreductase RDH11, RDH13 is considered to be a major enzyme among the RDH family of proteins. Catalytically active, RDH13 recognizes retinoids as substrates and may function in retinoic acid production. RDH13 may function to protect the mitochondria against oxidative stress. Leber congenital amaurosis (LCA) type 3, an inherited autosomal recessive retinal disease, has been associated with defects of RDH13. LCA represents the most common genetic cause of congenital visual impairment in infants and children.

REFERENCES

1. Haeseleer, F., et al. 2002. Dual-substrate specificity short chain retinol dehydrogenases from the vertebrate retina. J. Biol. Chem. 277: 45537-45546.
2. Kasus-Jacobi, A., et al. 2005. Functional characterization of mouse RDH11 as a retinol dehydrogenase involved in dark adaptation *in vivo*. J. Biol. Chem. 280: 20413-20420.
3. 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.
4. Keller, B. and Adamski, J. 2007. RDH12, a retinol dehydrogenase causing Leber's congenital amaurosis, is also involved in steroid metabolism. J. Steroid Biochem. Mol. Biol. 104: 190-194.
5. Pares, X., et al. 2008. Medium- and short-chain dehydrogenase/reductase gene and protein families: Medium-chain and short-chain dehydrogenases/reductases in retinoid metabolism. Cell. Mol. Life Sci. 65: 3936-3949.
6. Belyaeva, O.V., et al. 2008. Human retinol dehydrogenase 13 (RDH13) is a mitochondrial short-chain dehydrogenase/reductase with a retinaldehyde reductase activity. FEBS J. 275: 138-147.

CHROMOSOMAL LOCATION

Genetic locus: RDH13 (human) mapping to 19q13.42.

PRODUCT

RDH13 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 RDH13 shRNA Plasmid (h): sc-97134-SH and RDH13 shRNA (h) Lentiviral Particles: sc-97134-V as alternate gene silencing products.

For independent verification of RDH13 (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-97134A, sc-97134B and sc-97134C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

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

RDH13 siRNA (h) is recommended for the inhibition of RDH13 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

RDH13 (E-2): sc-515447 is recommended as a control antibody for monitoring of RDH13 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 RDH13 gene expression knockdown using RT-PCR Primer: RDH13 (h)-PR: sc-97134-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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