SANTA CRUZ BIOTECHNOLOGY, INC.

3β-HSD7 siRNA (m): sc-72403

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

3β-hydroxysteroid dehydrogenase (3β-HSD), also known as HSD3B1 or HSDB3, is a bifunctional enzyme that plays a crucial role in the synthesis of all classes of hormonal steroids. 3β-hydroxysteroid dehydrogenase type 7 (3β-HSD7) is a 369 amino acid protein belonging to the 3β-HSD family. Localized to the membrane of the endoplasmic reticulum, 3β-HSD7 plays an active role in the initial stages of bile synthesis from cholesterol. 3β-HSD7 catalyzes the oxidative conversion of δ5-ene-3β-hydroxy steroid and is active against 7α hydrosylated sterol substrates. Mutations in the gene encoding 3β-HSD7 are associated with congenital bile acid synthesis defect, which leads to neonatal cholestasis.

REFERENCES

1. Cheng, J.B., et al. 2003. Molecular genetics of 3β-hydroxy-δ5-C27-steroid oxidoreductase deficiency in 16 patients with loss of bile acid synthesis and liver disease. J. Clin. Endocrinol. Metab. 88: 1833-1841.
2. Rahier, A., et al. 2006. Molecular and enzymatic characterizations of novel bifunctional 3β-hydroxysteroid dehydrogenases/C4 decarboxylases from *Arabidopsis thaliana*. J. Biol. Chem. 281: 27264-27277.
3. Online Mendelian Inheritance in Man, OMIM™. 2006. Johns Hopkins University, Baltimore, MD. MIM Number: 607764. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Fischler, B., et al. 2007. Cholestatic liver disease in adults may be due to an inherited defect in bile acid biosynthesis. J. Intern. Med. 262: 254-262.
5. Shea, H.C., et al. 2007. Analysis of HSD3B7 knockout mice reveals that a 3α-hydroxyl stereochemistry is required for bile acid function. Proc. Natl. Acad. Sci. USA 104: 11526-11533.
6. Claahsen-van der Grinten, H.L., et al. 2008. An adrenal rest tumour in the perirenal region in a patient with congenital adrenal hyperplasia due to congenital 3β-hydroxysteroid dehydrogenase deficiency. Eur. J. Endocrinol. 159: 489-491.
7. Thomas, J.L., et al. 2008. Structure/function of the inhibition of human 3β-hydroxysteroid dehydrogenase type 1 and type 2 by trilostane. J. Steroid Biochem. Mol. Biol. 111: 66-73.
8. Tripodi, G., et al. 2009. Steroid biosynthesis and renal excretion in human essential hypertension: association with blood pressure and endogenous ouabain. Am. J. Hypertens. 22: 357-363.
9. Rahier, A., et al. 2009. Homology modeling and site-directed mutagenesis reveal catalytic key amino acids of 3β-hydroxysteroid-dehydrogenase/C4-decarboxylase from *Arabidopsis thaliana*. Plant Physiol. 149: 1872-1886.

CHROMOSOMAL LOCATION

Genetic locus: Hsd3b7 (mouse) mapping to 7 F3.

PROTOCOLS

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

PRODUCT

3β-HSD7 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 3β-HSD7 shRNA Plasmid (m): sc-72403-SH and 3β-HSD7 shRNA (m) Lentiviral Particles: sc-72403-V as alternate gene silencing products.

For independent verification of 3β-HSD7 (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-72403A, sc-72403B and sc-72403C.

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

3β-HSD7 siRNA (m) is recommended for the inhibition of 3β-HSD7 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 3β-HSD7 gene expression knockdown using RT-PCR Primer: 3β-HSD7 (m)-PR: sc-72403-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.