SANTA CRUZ BIOTECHNOLOGY, INC.

DUOXA2 siRNA (h): sc-77194

BACKGROUND

DUOXA2 (dual oxidase maturation factor 2) is a 320 amino acid multi-pass membrane protein that localizes to the endoplasmic reticulum (ER) and belongs to the DUOXA family. Expressed specifically in thyroid and salivary glands, DUOXA2 is essential for the maturation and transport of DUOX2 from the ER to the plasma membrane and is also thought to play a role in the synthesis of thyroid hormone (TH). Defects in the DUOXA2 gene are associated with the pathogenesis of congenital hypothyroidism, a disorder that affects infants and is characterized by a significant decrease or a complete deficiency of TH from birth. The gene encoding DUOXA2 maps to human chromosome 15, which houses over 700 genes and comprises nearly 3% of the human genome. Angelman syndrome, Prader-Willi syndrome, Tay-Sachs disease and Marfan syndrome are all associated with defects in chromosome 15-localized genes.

REFERENCES

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2. Moreno, J.C., et al. 2007. New phenotypes in thyroid dyshormonogenesis: hypothyroidism due to DUOX2 mutations. Endocr. Dev. 10: 99-117.
3. Grasberger, H., et al. 2007. Missense mutations of dual oxidase 2 (DUOX2) implicated in congenital hypothyroidism have impaired trafficking in cells reconstituted with DUOX2 maturation factor. Mol. Endocrinol. 21: 1408-1421.
4. Luxen, S., et al. 2008. Silencing of DUOX NADPH oxidases by promoter hypermethylation in lung cancer. Cancer Res. 68: 1037-1045.
5. Morand, S., et al. 2008. Duox maturation factors form cell surface complexes with Duox affecting the specificity of reactive oxygen species generation. FASEB J. 23: 1205-1218.
6. Zamproni, I., et al. 2008. Biallelic inactivation of the dual oxidase maturation factor 2 (DUOXA2) gene as a novel cause of congenital hypothyroidism. J. Clin. Endocrinol. Metab. 93: 605-610.
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CHROMOSOMAL LOCATION

Genetic locus: DUOXA2 (human) mapping to 15q21.1.

PRODUCT

DUOXA2 siRNA (h) is a target-specific 19-25 nt siRNA 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 DUOXA2 shRNA Plasmid (h): sc-77194-SH and DUOXA2 shRNA (h) Lentiviral Particles: sc-77194-V as alternate gene silencing products.

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

DUOXA2 siRNA (h) is recommended for the inhibition of DUOXA2 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor DUOXA2 gene expression knockdown using RT-PCR Primer: DUOXA2 (h)-PR: sc-77194-PR (20 µl, 525 bp). 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.