SANTA CRUZ BIOTECHNOLOGY, INC.

DEHAL1 siRNA (h): sc-95564

BACKGROUND

Iodotyrosine dehalogenase 1 (DEHAL1), also designated IYD-1, is a transmembrane protein involved in the recycling of iodide in the human thyroid. Specifically, DEHAL1 catalyzes the oxidative NADPH-dependent deiodination of monoiodotyrosine (L-MIT) or diiodotyrosine (L-DIT). It is highly expressed in thyroid and is expressed at a lower levels in kidney and trachea. DEHAL1 exists as seven isoforms, which are a result of alternative splicing. Mutations in the gene encoding DEHAL1 are the cause of congenital hypothyroidism due to dyshormonogenesis type 4 (CHDH4). Patients with this defect present a phenotype of severe hypothyroidism, goiter, excessive levels of iodotyrosine in serum and urine and variable mental deficits derived from unrecognized hypothyroidism.

REFERENCES

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2. Moreno, J.C. 2003. Identification of novel genes involved in congenital hypothyroidism using serial analysis of gene expression. Horm. Res. 60: 96-102.
3. Gnidehou, S., et al. 2004. Iodotyrosine dehalogenase 1 (DEHAL1) is a transmembrane protein involved in the recycling of iodide close to the thyroglobulin iodination site. FASEB J. 18: 1574-1576.
4. Gnidehou, S., et al. 2006. Cloning and characterization of a novel isoform of iodotyrosine dehalogenase 1 (DEHAL1) DEHAL1C from human thyroid: comparisons with DEHAL1 and DEHAL1B. Thyroid 16: 715-724.
5. Krause, K., et al. 2007. Characterisation of DEHAL1 expression in thyroid pathologies. Eur. J. Endocrinol. 156: 295-301.
6. Afink, G., et al. 2008. Molecular characterization of iodotyrosine dehalogenase deficiency in patients with hypothyroidism. J. Clin. Endocrinol. Metab. 93: 4894-4901.
7. Moreno, J.C., et al. 2008. Mutations in the iodotyrosine deiodinase gene and hypothyroidism. N. Engl. J. Med. 358: 1811-1818.
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CHROMOSOMAL LOCATION

Genetic locus: IYD (human) mapping to 6q25.1.

PRODUCT

DEHAL1 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 DEHAL1 shRNA Plasmid (h): sc-95564-SH and DEHAL1 shRNA (h) Lentiviral Particles: sc-95564-V as alternate gene silencing products.

For independent verification of DEHAL1 (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-95564A, sc-95564B and sc-95564C.

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

DEHAL1 siRNA (h) is recommended for the inhibition of DEHAL1 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 DEHAL1 gene expression knockdown using RT-PCR Primer: DEHAL1 (h)-PR: sc-95564-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.

PROTOCOLS

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