SANTA CRUZ BIOTECHNOLOGY, INC.

FADS2 siRNA (h): sc-96449

BACKGROUND

Members of the fatty acid desaturase (FADS) family, including FADS1, FADS2 and FADS3, regulate the desaturation of fatty acids by introducing double bonds between defined carbons of fatty acyl chains, thereby playing an essential role in the lipid metabolic pathway. Members of this family share N-terminal cytochrome b5-like domains, C-terminal multiple membrane-spanning desaturase regions and 3 histidine box motifs. FADS2 (fatty acid desaturase 2), also known as D6D, DES6, LLCDL2 or TU13, is a 444 amino acid multi-pass membrane protein that localizes to the endoplasmic reticulum and contains one cytochrome β5 heme-binding domain. Expressed in adult and fetal heart and in adult liver, brain, lung and retina, FADS2 functions as a component of a lipid metabolic pathway and catalyzes the first step in the pathway, namely the formation of unsaturated fatty acids from polyunsaturated fatty acids. Defects in the gene encoding FADS2 are the cause of cause of fatty acid Δ-6-desaturase deficiency, an affliction that is characterized by skin abnormalities, corneal ulceration and growth failure. Multiple isoforms of FADS2 exist due to alternative splicing events.

REFERENCES

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2. Cho, H.P., et al. 1999. Cloning, expression, and nutritional regulation of the mammalian Δ-6 desaturase. J. Biol. Chem. 274: 471-477.
3. Marquardt, A., et al. 2000. cDNA cloning, genomic structure, and chromosomal localization of three members of the human fatty acid desaturase family. Genomics 66: 175-183.
4. Online Mendelian Inheritance in Man, OMIM™. 2001. Johns Hopkins University, Baltimore, MD. MIM Number: 606149. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
5. Martinelli, N., et al. 2008. FADS genotypes and desaturase activity estimated by the ratio of arachidonic acid to linoleic acid are associated with inflammation and coronary artery disease. Am. J. Clin. Nutr. 88: 941-949.
6. Xie, L., et al. 2008. Genetic variants of the FADS1 FADS2 gene cluster are associated with altered (n-6) and (n-3) essential fatty acids in plasma and erythrocyte phospholipids in women during pregnancy and in breast milk during lactation. J. Nutr. 138: 2222-2228.

CHROMOSOMAL LOCATION

Genetic locus: FADS2 (human) mapping to 11q12.2.

PRODUCT

FADS2 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 FADS2 shRNA Plasmid (h): sc-96449-SH and FADS2 shRNA (h) Lentiviral Particles: sc-96449-V as alternate gene silencing products.

For independent verification of FADS2 (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-96449A, sc-96449B and sc-96449C.

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

FADS2 siRNA (h) is recommended for the inhibition of FADS2 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 FADS2 gene expression knockdown using RT-PCR Primer: FADS2 (h)-PR: sc-96449-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.