SANTA CRUZ BIOTECHNOLOGY, INC.

FADS1 siRNA (m): sc-145002

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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. It has been suggested that single nucleotide polymorphisms (SNPs) within the FADS gene cluster may be associated with diseases related to inflammation and immunity processes. FADS1, also known as Delta(5) desaturase or D5D, is a 444 amino acid protein that is abundantly expressed in liver, brain, adrenal gland and heart. Localized to the endoplasmic reticulum where it exists as a multi-pass membrane protein, FADS1 catalyzes the biosynthesis of highly unsaturated fatty acids from linoleic acid and alpha-linolenic acid. Additionally, FADS1 functions to catalyze the desaturation of both dihomo-γ-linoleic acid (DHGLA) and eicosatetraenoic acid (EA) to produce arachidonic acid (AA) and eicosapentaenoic acid (EPA), respectively.

REFERENCES

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2. 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.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 606148. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Schaeffer, L., et al. 2006. Common genetic variants of the FADS1 FADS2 gene cluster and their reconstructed haplotypes are associated with the fatty acid composition in phospholipids. Hum. Mol. Genet. 15: 1745-1756.
5. Dreesen, T.D., et al. 2006. A newly discovered member of the fatty acid desaturase gene family: a non-coding, antisense RNA gene to delta-5 desaturase. Prostaglandins Leukot. Essent. Fatty Acids 75: 97-106.

CHROMOSOMAL LOCATION

Genetic locus: Fads1 (mouse) mapping to 19 A.

PRODUCT

FADS1 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 FADS1 shRNA Plasmid (m): sc-145002-SH and FADS1 shRNA (m) Lentiviral Particles: sc-145002-V as alternate gene silencing products.

For independent verification of FADS1 (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-145002A, sc-145002B and sc-145002C.

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

FADS1 siRNA (m) is recommended for the inhibition of FADS1 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 FADS1 gene expression knockdown using RT-PCR Primer: FADS1 (m)-PR: sc-145002-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.