SANTA CRUZ BIOTECHNOLOGY, INC.

SHFM3 siRNA (h): sc-90449

BACKGROUND

SHFM3 (split-hand/foot malformation type 3), also known as FBXW4 (F-box and WD-40 domain-containing protein 4) or Dactylin, is a 412 amino acid protein that is primarily involved in signaling pathways that are essential for normal limb development. Specifically, SHFM3 promotes ubiquination and degradation of certain phosphorylated proteins. Defects in the gene encoding SHFM3 are the cause of split-hand/foot malformation type 3, an autosomal dominant disorder that is characterized by hypoplasia/aplasia of the central digits, causing variable fusion with the remaining digits. The disease is not a result of a point mutation, but rather a genomic rearrangement resulting in a tandem duplication that contains a disrupted copy of the gene encoding SHFM3, as well as extra copies of two other genes that are linked to limb development. SHFM3 is typically expressed in kidney, brain, lung and liver, with highest expression in fetal brain.

REFERENCES

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2. Sidow, A., et al. 1999. A novel member of the F-box/WD40 gene family, encoding dactylin, is disrupted in the mouse dactylaplasia mutant. Nat. Genet. 23: 104-107.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 608071. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Basel, D., et al. 2003. Split hand foot malformation is associated with a reduced level of dactylin gene expression. Clin. Genet. 64: 350-354.
5. de Mollerat, X.J., et al. 2003. A genomic rearrangement resulting in a tandem duplication is associated with split hand-split foot malformation 3 (SHFM3) at 10q24. Hum. Mol. Genet. 12: 1959-1971.
6. Roscioli, T., et al. 2004. The 10q24-linked split hand/split foot syndrome (SHFM3): narrowing of the critical region and confirmation of the clinical phenotype. Am. J. Med. Genet. A 124A: 136-141.
7. Kano, H., et al. 2005. Genomic rearrangement at 10q24 in non-syndromic split-hand/split-foot malformation. Hum. Genet. 118: 477-483.

CHROMOSOMAL LOCATION

Genetic locus: FBXW4 (human) mapping to 10q24.32.

PRODUCT

SHFM3 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 SHFM3 shRNA Plasmid (h): sc-90449-SH and SHFM3 shRNA (h) Lentiviral Particles: sc-90449-V as alternate gene silencing products.

For independent verification of SHFM3 (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-90449A, sc-90449B and sc-90449C.

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

SHFM3 siRNA (h) is recommended for the inhibition of SHFM3 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 SHFM3 gene expression knockdown using RT-PCR Primer: SHFM3 (h)-PR: sc-90449-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.