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SANTA CRUZ BIOTECHNOLOGY, INC.

FUCA1 siRNA (m): sc-145267

BACKGROUND

FUCA1 (fucosidase, α-L- 1, tissue) is a 466 amino acid membrane- and seminal-associated isozyme that is a member of the glycosyl hydrolase 29 family. FUCA1 functions as a homotetramer and is responsible for hydrolyzing and reducing the carbohydrate moieties of glycoproteins in various tissues. Defects in the gene encoding FUCA1 result in fucosidosis, an autosomal recessive disorder caused by an accumulation of fucose-containing glycolipids and glycoproteins. Fucosidosis, a lysosomal storage disease, is characterized by neurologic deterioration, growth retardation, visceromegaly, and seizures. Early onset of fucosidosis causes coarse facial features, angiokeratoma corporis diffusum, spasticity, delayed psychomotor development and an unusual spondylometaphyseoepiphyseal dysplasia.

REFERENCES

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2. Takeshita, H., et al. 1994. Genetically polymorphic α-L-fucosidase (FUCA1) isozymes detected in blood plasma. Hum. Genet. 94: 224-230.
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4. Ip, P., et al. 2002. A novel FUCA1 mutation causing fucosidosis in a Chinese boy. J. Inherit. Metab. Dis. 25: 415-416.
5. Khunsook, S., et al. 2002. Purification and characterization of human seminal plasma α-L-fucosidase. Mol. Hum. Reprod. 8: 221-227.
6. Intra, J., et al. 2006. An α-L-fucosidase potentially involved in fertilization is present on *Drosophila* spermatozoa surface. Mol. Reprod. Dev. 73: 1149-1158.
7. Li, C., et al. 2006. Purification and characterization of α-L-fucosidase from human primary hepatocarcinoma tissue. World J. Gastroenterol. 12: 3770-3775.
8. Venditti, J.J., et al. 2007. Crypticity and functional distribution of the membrane associated α-L-fucosidase of human sperm. Mol. Reprod. Dev. 74: 758-766.

CHROMOSOMAL LOCATION

Genetic locus: Fuca1 (mouse) mapping to 4 D3.

PRODUCT

FUCA1 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 FUCA1 shRNA Plasmid (m): sc-145267-SH and FUCA1 shRNA (m) Lentiviral Particles: sc-145267-V as alternate gene silencing products.

For independent verification of FUCA1 (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-145267A, sc-145267B and sc-145267C.

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

FUCA1 siRNA (m) is recommended for the inhibition of FUCA1 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.

GENE EXPRESSION MONITORING

FUCA1 (G-12): sc-365496 is recommended as a control antibody for monitoring of FUCA1 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor FUCA1 gene expression knockdown using RT-PCR Primer: FUCA1 (m)-PR: sc-145267-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.