SANTA CRUZ BIOTECHNOLOGY, INC.

ELOVL4 siRNA (h): sc-60574

BACKGROUND

Elongation of very long chain fatty acid-like (ELOVL) proteins 1-6 are members of the ELO family of proteins, which play an important role in tissue-specific biosynthesis of very long chain fatty acids and sphingolipids. The ELOVL proteins act as catalysts in fatty acid elongation reduction and localize to the endoplasmic reticulum (ER). Elongation of very long chain fatty acids-like 4 (ELOVL4) is expressed in ER in the retina and, to a lesser extent, in the brain. ELOVL4 is a possible photoreceptor-specific component of the fatty acid elongation system residing on the ER. Mutations in the ELOVL4 gene cause autosomal dominant Stargardt disease 3 (STGD3) and autosomal dominant Stargardt-like macular dystrophy (ADMD). STGD3 is a form of macular degeneration that causes macular atrophy, decreased visual acuity and extensive fundus flecks in affected individuals.

REFERENCES

1. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 605512. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
2. Maugeri, A., et al. 2004. A novel mutation in the ELOVL4 gene causes autosomal dominant Stargardt-like macular dystrophy. Invest. Ophthalmol. Vis. Sci. 45: 4263-4267.
3. Conley, Y.P., et al. 2005. Candidate gene analysis suggests a role for fatty acid biosynthesis and regulation of the complement system in the etiology of age-related maculopathy. Hum. Mol. Genet. 14: 1991-2002.
4. Grayson, C., et al. 2005. Dominant negative mechanism underlies autosomal dominant Stargardt-like macular dystrophy linked to mutations in ELOVL4. J. Biol. Chem. 280: 32521-32530.
5. Karan, G., et al. 2005. Lipofuscin accumulation, abnormal electrophysiology and photoreceptor degeneration in mutant ELOVL4 transgenic mice: a model for macular degeneration. Proc. Natl. Acad. Sci. USA 102: 4164-4169.
6. Karan, G., et al. 2005. Loss of ER retention and sequestration of the wild-type ELOVL4 by Stargardt disease dominant negative mutants. Mol. Vis. 11: 657-664.

CHROMOSOMAL LOCATION

Genetic locus: ELOVL4 (human) mapping to 6q14.1.

PRODUCT

ELOVL4 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 ELOVL4 shRNA Plasmid (h): sc-60574-SH and ELOVL4 shRNA (h) Lentiviral Particles: sc-60574-V as alternate gene silencing products.

For independent verification of ELOVL4 (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-60574A, sc-60574B and sc-60574C.

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

ELOVL4 siRNA (h) is recommended for the inhibition of ELOVL4 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 ELOVL4 gene expression knock down using RT-PCR Primer: ELOVL4 (h)-PR: sc-60574-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.