SANTA CRUZ BIOTECHNOLOGY, INC.

ELOVL4 shRNA (m) Lentiviral Particles: sc-60575-V

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

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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 (mouse) mapping to 9 E2.

PRODUCT

ELOVL4 shRNA (m) Lentiviral Particles is a pool of concentrated, transduction-ready viral particles containing 3 target-specific constructs that encode 19-25 nt (plus hairpin) shRNA designed to knock down gene expression. Each vial contains 200 µl frozen stock containing 1.0 x 10^6 infectious units of virus (IFU) in Dulbecco's Modified Eagle's Medium with 25 mM HEPES pH 7.3. Suitable for 10-20 transductions. Also see ELOVL4 siRNA (m): sc-60575 and ELOVL4 shRNA Plasmid (m): sc-60575-SH as alternate gene silencing products.

STORAGE

Store lentiviral particles at -80° C. Stable for at least one year from the date of shipment. Once thawed, particles can be stored at 4° C for up to one week. Avoid repeated freeze thaw cycles.

APPLICATIONS

ELOVL4 shRNA (m) Lentiviral Particles is recommended for the inhibition of ELOVL4 expression in mouse cells.

SUPPORT REAGENTS

Control shRNA Lentiviral Particles: sc-108080. Available as 200 µl frozen viral stock containing 1.0 x 10^6 infectious units of virus (IFU); contains an shRNA construct encoding a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor ELOVL4 gene expression knockdown using RT-PCR Primer: ELOVL4 (m)-PR: sc-60575-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

BIOSAFETY

Lentiviral particles can be employed in standard Biosafety Level 2 tissue culture facilities (and should be treated with the same level of caution as with any other potentially infectious reagent). Lentiviral particles are replication-incompetent and are designed to self-inactivate after transduction and integration of shRNA constructs into genomic DNA of target cells.

RESEARCH USE

The purchase of this product conveys to the buyer the nontransferable right to use the purchased amount of the product and all replicates and derivatives for research purposes conducted by the buyer in his laboratory only (whether the buyer is an academic or for-profit entity). The buyer cannot sell or otherwise transfer (a) this product (b) its components or (c) materials made using this product or its components to a third party, or otherwise use this product or its components or materials made using this product or its components for Commercial Purposes.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.