SANTA CRUZ BIOTECHNOLOGY, INC.

Bestrophin siRNA (m): sc-141686

BACKGROUND

The retinal pigment epithelium (RPE) and choroid represent a differentiated system of the eye that sustains normal retinal health and function. Best vitelliform macular dystrophy, known as Best disease, is an early-onset autosomal dominant condition in which accumulation of lipofuscin-like material within and beneath the RPE leads to progressive loss of central vision. The lipofuscin-like material in the macular area appears as a yellow mass like the yolk of an egg that later becomes darker and irregular in color, a process known as "scrambling the egg". Best disease is frequently a reflection of mutations in the Bestrophin gene, which encodes a protein containing four putative transmembrane domains and localizes to the basolateral plasma membrane of RPE cells. Human Bestrophin forms oligomeric chloride channels that are sensitive to intracellular calcium. Missense mutations at the Bestrophin locus reduces or abolishes Bestrophin protein mediated membrane current. The human Bestrophin gene encodes a 585 amino acid protein.

REFERENCES

1. Best, F. 1905. Ueber eine hereditaere maculaaffektion. Z Augenheilkd 13: 199-212.
2. Braley, A.E. 1966. Dystrophy of the macula. Am. J. Ophthalmol. 61: 1-24.
3. Petrukhin, K., et al. 1998. Identification of the gene responsible for Best macular dystrophy. Nat. Genet. 19: 241-247.
4. Marmorstein, A.D., et al. 2000. Bestrophin, the product of the Best vitelliform macular dystrophy gene (VMD2), localizes to the basolateral plasma membrane of the retinal pigment epithelium. Proc. Natl. Acad. Sci. USA 97: 12758-12763.
5. Musarella, M.A. 2001. Molecular genetics of macular degeneration. Doc. Ophthalmol. 102: 165-177.
6. Tavsanli, B.C., et al. 2001. Dbest1, a *Drosophila* homolog of human Bestrophin, is not required for viability or photoreceptor integrity. Genesis 31: 130-136.
7. Gomez, A., et al. 2001. The gene causing the Best's macular dystrophy (BMD) encodes a putative ion exchanger. DNA Seq. 12: 431-435.
8. Sun, H., et al. 2002. The vitelliform macular dystrophy protein defines a new family of chloride channels. Proc. Natl. Acad. Sci. USA 99: 4008-4013.

CHROMOSOMAL LOCATION

Genetic locus: Best1 (mouse) mapping to 19 A.

PRODUCT

Bestrophin 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 Bestrophin shRNA Plasmid (m): sc-141686-SH and Bestrophin shRNA (m) Lentiviral Particles: sc-141686-V as alternate gene silencing products.

For independent verification of Bestrophin (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-141686A, sc-141686B and sc-141686C.

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

Bestrophin siRNA (m) is recommended for the inhibition of Bestrophin 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 Bestrophin gene expression knockdown using RT-PCR Primer: Bestrophin (m)-PR: sc-141686-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.