SANTA CRUZ BIOTECHNOLOGY, INC.

Otoconin 90 siRNA (h): sc-77683

BACKGROUND

The ability to sense orientation relative to gravity requires dense particles, called otoconia, which are localized in the vestibular macular organs. In mammals, otoconia are composed of proteins (otoconins) and calcium carbonate crystals in a calcite lattice. Otoconin 90, also known as PLA2L (phospholipase A2 homolog) or OC90, is a 493 amino acid secreted protein belonging to the phospholipase A2 family. Consisting of three PA2-type domains, Otoconin 90 regulates the growth of otoconia crystals. The inertial mass of otoconia crystals provides a shearing force to stimulate the mechanoreceptors of the utricle and saccule (the gravity receptor organ) under the stimuli of linear motion. Otoconin 90 specifically recruits other matrix components, which are essential for formation of the organic matrix of otoconia. Otoconin 90 is encoded by a gene located on human chromosome 8, which consists of nearly 146 million base pairs, houses more than 800 genes and is associated with a variety of diseases and malignancies.

REFERENCES

1. Wang, Y., et al. 1998. Otoconin-90, the mammalian otoconial matrix protein, contains two domains of homology to secretory phospholipase A2. Proc. Natl. Acad. Sci. USA 95: 15345-15350.
2. Kowalski, P.E., et al. 1999. Intergenic splicing between a HERV-H endogenous retrovirus and two adjacent human genes. Genomics 57: 371-379.
3. Thalmann, R., et al. 2001. Development and maintenance of otoconia: biochemical considerations. Ann. N.Y. Acad. Sci. 942: 162-178.
4. Ignatova, E.G., et al. 2004. Molecular mechanisms underlying ectopic otoconia-like particles in the endolymphatic sac of embryonic mice. Hear. Res. 194: 65-72.
5. Kiss, P.J., et al. 2006. Inactivation of NADPH oxidase organizer 1 results in severe imbalance. Curr. Biol. 16: 208-213.
6. Zhao, X., et al. 2007. Gene targeting reveals the role of Oc90 as the essential organizer of the otoconial organic matrix. Dev. Biol. 304: 508-524.

CHROMOSOMAL LOCATION

Genetic locus: OC90 (human) mapping to 8q24.22.

PRODUCT

Otoconin 90 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 Otoconin 90 shRNA Plasmid (h): sc-77683-SH and Otoconin 90 shRNA (h) Lentiviral Particles: sc-77683-V as alternate gene silencing products.

For independent verification of Otoconin 90 (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-77683A, sc-77683B and sc-77683C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

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

Otoconin 90 siRNA (h) is recommended for the inhibition of Otoconin 90 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.

GENE EXPRESSION MONITORING

Otoconin 90 (D-2): sc-376855 is recommended as a control antibody for monitoring of Otoconin 90 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 Otoconin 90 gene expression knockdown using RT-PCR Primer: Otoconin 90 (h)-PR: sc-77683-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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