SANTA CRUZ BIOTECHNOLOGY, INC.

Prestin siRNA (m): sc-40992

BACKGROUND

The most impressive property of outer hair cells (OHCs) is their ability to change their length at high acoustic frequencies, thus providing the exquisite sensitivity and frequency-resolving capacity of the mammalian hearing organ. Prestin, a transmembrane protein found in the outer hair cells of the cochlea, is related to a sulfate/anion transport protein. In contrast to enzymatic-activity-based motors, Prestin is a direct voltage-to-force converter, which uses cytoplasmic anions as extrinsic voltage sensors and can operate at microsecond rates. Intracellular anions such as chloride or bicarbonate are essential for Prestin to function as the OHC motor molecule. As Prestin mediates changes in outer hair cell length in response to membrane potential variations, it may be responsible for sound amplification in the mammalian hearing organ. Additionally, the voltage sensitivity of Prestin is markedly temperature dependent.

REFERENCES

1. Meltzer, J., et al. 2001. Temperature dependence of non-linear capacitance in human embryonic kidney cells transfected with Prestin, the outer hair cell motor protein. Neurosci. Lett. 313: 141-144.
2. Weber, T., et al. 2002. Thyroid hormone is a critical determinant for the regulation of the cochlear motor protein Prestin. Proc. Natl. Acad. Sci. USA 99: 2901-2906.
3. Dallos, P., et al. 2002. Prestin, a new type of motor protein. Nat. Rev. Mol. Cell Biol. 3: 104-111.
4. Zheng, J., et al. 2002. Prestin, the motor protein of outer hair cells. Audiol. Neurootol. 7: 9-12.
5. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 604943. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/

CHROMOSOMAL LOCATION

Genetic locus: Slc26a5 (mouse) mapping to 5 A3.

PRODUCT

Prestin 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 Prestin shRNA Plasmid (m): sc-40992-SH and Prestin shRNA (m) Lentiviral Particles: sc-40992-V as alternate gene silencing products.

For independent verification of Prestin (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-40992A, sc-40992B and sc-40992C.

PROTOCOLS

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

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

Prestin siRNA (m) is recommended for the inhibition of Prestin 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 Prestin gene expression knockdown using RT-PCR Primer: Prestin (m)-PR: sc-40992-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.