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SANTA CRUZ BIOTECHNOLOGY, INC.

Pendrin siRNA (m): sc-44391

BACKGROUND

Pendred syndrome (PDS), an autosomal recessive disorder, is the most common form of syndromic deafness characterized by congenital sensorineural hearing loss and goiter. The gene associated with PDS is mapped to chromosome 7 and encodes a putative transmembrane protein designated Pendrin. Several mutations in the gene have been identified and account for about 10% of hereditary deafness. Pendrin transcripts are expressed at significant levels in the thyroid, inner ear, fetal cochlea and kidney, but expression is drastically reduced in thyroid carcinomas. Pendrin functions as a transporter of chloride and iodide, but not sulfate, in these tissues. Pendrin is an apical anion transporter in intercalated cells of proximal tubule and cortical collecting ducts, which mediate renal bicarbonate secretion and Cl^-/OH^-, Cl^-/HCO_3^- and Cl^-/formate exchange in kidney. Pendrin is expressed throughout the endolymphatic duct and sac in distinct areas of the utricle and saccule and in the external sulcus region within the cochlea, where it plays a role in the development of ion gradients.

REFERENCES

1. Everett, L.A., et al. 1997. Pendred syndrome is caused by mutations in a putative sulphate transporter gene (PDS). Nat. Genet. 17: 411-422.
2. Coyle, B., et al. 1998. Molecular analysis of the PDS gene in Pendred syndrome. Hum. Mol. Genet. 7: 1105-1112.
3. Everett, L.A., et al. 1999. Expression pattern of the mouse ortholog of the Pendred's syndrome gene (Pds) suggests a key role for Pendrin in the inner ear. Proc. Natl. Acad. Sci. USA 96: 9727-9732.
4. Scott, D.A., et al. 1999. The Pendred syndrome gene encodes a chloride-iodide transport protein. Nat. Genet. 21: 440-443.
5. Scott, D.A., et al. 2000. Human Pendrin expressed in *Xenopus laevis* oocytes mediates chloride/formate exchange. Am. J. Physiol., Cell Physiol. 278: C207-C211.
6. Bidart, J.M., et al. 2000. Expression of Pendrin and the Pendred syndrome (PDS) gene in human thyroid tissues. J. Clin. Endocrinol. Metab. 85: 2028-2033.

CHROMOSOMAL LOCATION

Genetic locus: Slc26a4 (mouse) mapping to 12 A3.

PRODUCT

Pendrin 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 Pendrin shRNA Plasmid (m): sc-44391-SH and Pendrin shRNA (m) Lentiviral Particles: sc-44391-V as alternate gene silencing products.

For independent verification of Pendrin (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-44391A, sc-44391B and sc-44391C.

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

Pendrin siRNA (m) is recommended for the inhibition of Pendrin 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.

GENE EXPRESSION MONITORING

Pendrin (G-11): sc-518108 is recommended as a control antibody for monitoring of Pendrin 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 Pendrin gene expression knockdown using RT-PCR Primer: Pendrin (m)-PR: sc-44391-PR (20 µl, 440 bp). 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.