SANTA CRUZ BIOTECHNOLOGY, INC.

Polycystin-2 siRNA (h): sc-40863

BACKGROUND

Autosomal dominant polycystic kidney disease (ADPKD) is characterized by the formation of cysts in kidney tubules as well as in liver and pancreas tissues. Cells within these cysts display abnormalities in proliferation and polarity. Polycystin-2 (PKD2), an integral membrane glycoprotein, is mutated in approximately 15% of patients with ADPKD. Polycystin-2 is expressed in medullary collecting ducts, cortical collecting ducts and distal convoluted tubules of kidney. It associates with Hax-1 and may be involved in cell-matrix interactions. Polycystin-1 and Polycystin-2 display significant homology within their transmembrane region and are thought to interact in order to enhance AP-1 expression, which regulates cell proliferation, differentiation and apoptosis. These findings suggest that mutations in Polycystin-2 may facilitate the development of renal tubular cysts.

REFERENCES

1. Arnould, T., et al. 1998. The polycystic kidney disease 1 gene product mediates protein kinase C α-dependent and c-Jun N-terminal kinase-dependent activation of the transcription factor AP-1. J. Biol. Chem. 273: 6013-6018.
2. Huan, Y., et al. 1999. Polycystin-1, the PKD1 gene product, is in a complex containing E-cadherin and the catenins. J. Clin. Invest. 104: 1459-1468.
3. Ong, A.C., et al. 1999. Coordinate expression of the autosomal dominant polycystic kidney disease proteins, Polycystin-2 and Polycystin-1, in normal and cystic tissue. Am. J. Pathol. 154: 1721-1729.
4. Obermuller, N., et al. 1999. The rat PKD2 protein assumes distinct subcellular distributions in different organs. Am. J. Physiol. 277: F914-F925.
5. Cai, Y., et al. 1999. Identification and characterization of Polycystin-2, the PKD2 gene product. J. Biol. Chem. 274: 28557-28565.
6. Arnould, T., et al. 1999. Cellular activation triggered by the autosomal dominant polycystic kidney disease gene product PKD2. Mol. Cell. Biol. 19: 3423-3434.
7. Gallagher, A.R., et al. 2000. The polycystic kidney disease protein PKD2 interacts with Hax-1, a protein associated with the actin cytoskeleton. Proc. Natl. Acad. Sci. USA 97: 4017-4022.

CHROMOSOMAL LOCATION

Genetic locus: PKD2 (human) mapping to 4q22.1.

PRODUCT

Polycystin-2 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 Polycystin-2 shRNA Plasmid (h): sc-40863-SH and Polycystin-2 shRNA (h) Lentiviral Particles: sc-40863-V as alternate gene silencing products.

For independent verification of Polycystin-2 (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-40863A, sc-40863B and sc-40863C.

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

Polycystin-2 siRNA (h) is recommended for the inhibition of Polycystin-2 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

Polycystin-2 (YCE2): sc-47734 is recommended as a control antibody for monitoring of Polycystin-2 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 Polycystin-2 gene expression knockdown using RT-PCR Primer: Polycystin-2 (h)-PR: sc-40863-PR (20 µl, 494 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.