

Podocin siRNA (m): sc-40860

BACKGROUND

The onset of autosomal recessive steroid-resistant nephrotic syndrome (SRN1) in humans occurs by early childhood. Characteristics of SRN1 include proteinuria, rapid progression to end-stage renal disease and focal segmental glomerulosclerosis. The pathological conditions of SRN1 correlate well with mutations at the NPHS2 gene, where expression of a protein known as Podocin occurs. Abnormal or inefficient signaling through Podocin protein-dependent networks contributes to the development of podocyte dysfunction and proteinuria. The human NPHS2 gene maps to chromosome 1q25-q31 and encodes a 383 amino acid protein. Podocin is an integral membrane protein that appears to fold into a hairpin-like structure with intracellular amino- and carboxy-termini. Transmembrane and cytoplasmic portions of Podocin share homology to the corresponding regions of the stomatin family proteins. Expression of high-order oligomers of Podocin in glomerular podocytes may reflect a scaffolding function that influences proper function of the glomerular filtration barrier, which is necessary for renal stability.

REFERENCES

1. Boute, N., et al. 2000. NPHS2, encoding the glomerular protein Podocin, is mutated in autosomal recessive steroid-resistant nephrotic syndrome. *Nat. Genet.* 24: 349-354.
2. Online Mendelian Inheritance in Man, OMIM™. 2000. Johns Hopkins University, Baltimore, MD. MIM Number: 604766. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
3. Huber, T.B., et al. 2001. Interaction with Podocin facilitates nephrin signaling. *J. Biol. Chem.* 276: 41543-41546.
4. Caridi, G., et al. 2001. Prevalence, genetics, and clinical features of patients carrying Podocin mutations in steroid-resistant nonfamilial focal segmental glomerulosclerosis. *J. Am. Soc. Nephrol.* 12: 2742-2746.
5. Schwarz, K., et al. 2001. Podocin, a raft-associated component of the glomerular slit diaphragm, interacts with CD2AP and nephrin. *J. Clin. Invest.* 108: 1621-1629.
6. Roselli, S., et al. 2002. Podocin localizes in the kidney to the slit diaphragm area. *Am. J. Pathol.* 160: 131-139.

CHROMOSOMAL LOCATION

Genetic locus: Nphs2 (mouse) mapping to 1 G3.

PRODUCT

Podocin 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Podocin shRNA Plasmid (m): sc-40860-SH and Podocin shRNA (m) Lentiviral Particles: sc-40860-V as alternate gene silencing products.

For independent verification of Podocin (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-40860A, sc-40860B and sc-40860C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

Podocin siRNA (m) is recommended for the inhibition of Podocin 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 μ M in 66 μ l. 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 Podocin gene expression knockdown using RT-PCR Primer: Podocin (m)-PR: sc-40860-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Roshanravan, H., et al. 2016. 20-Hydroxyeicosatetraenoic acid (20-HETE) modulates canonical transient receptor potential-6 (TRPC6) channels in podocytes. *Front. Physiol.* 7: 351.

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.