SANTA CRUZ BIOTECHNOLOGY, INC.

NPT2 siRNA (h): sc-40141

BACKGROUND

Renal tubular reabsorption of phosphate is critical to the maintenance of phosphate homeostasis in mammals. The brush-border membrane Na^+/P_i cotransport systems in proximal tubules play a major role in this process. The renal Na^+/P_i cotransporter NPT2 is expressed in the brush border membrane (BBM) of proximal tubular cells. NPT2 gene expression is crucial for PTH effects on renal P_i handling. However, renal expression of the sodium/phosphate cotransporter gene, NPT2, is not required for regulation of renal 1 α-hydroxylase by phosphate. NPT2 is an integral membrane protein expressed in kidney and lung. The gene encoding human NPT1 maps to chromosome 6p22.2, while the gene encoding human NPT2 maps to chromosome 5q35.3.

REFERENCES

1. Chong, S.S., et al. 1993. Molecular cloning of the cDNA encoding a human renal sodium phosphate transport protein and its assignment to chromosome 6p21.3-p23. Genomics 18: 355-359.
2. Chong, S.S., et al. 1995. Cloning, genetic mapping, and expression analysis of a mouse renal sodium-dependent phosphate cotransporter. Am. J. Physiol. 268: F1038-F1045.
3. Kos, C.H., et al. 1996. Comparative mapping of Na^+-phosphate cotransporter genes, NPT1 and NPT2, in human and rabbit. Cytogenet. Cell Genet. 75: 22-24.
4. Hoag, H.M., et al. 1999. Effects of NPT2 gene ablation and low-phosphate diet on renal Na^+/phosphate cotransport and cotransporter gene expression. J. Clin. Invest. 104: 679-686.
5. Zhao, N., et al. 2000. NPT2 gene disruption confers resistance to the inhibitory action of parathyroid hormone on renal sodium-phosphate cotransport. Endocrinology 141: 2159-2165.
6. Soumounou, Y., et al. 2001. Murine and human type I Na-phosphate cotransporter genes: structure and promoter activity. Am. J. Physiol. Renal. Physiol. 281: F1082-F1091.
7. Tenenhouse, H.S., et al. 2001. Renal expression of the sodium/phosphate cotransporter gene, NPT2, is not required for regulation of renal 1 α-hydroxylase by phosphate. Endocrinology 142: 1124-1129.

CHROMOSOMAL LOCATION

Genetic locus: SLC34A1 (human) mapping to 5q35.3.

PRODUCT

NPT2 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 NPT2 shRNA Plasmid (h): sc-40141-SH and NPT2 shRNA (h) Lentiviral Particles: sc-40141-V as alternate gene silencing products.

For independent verification of NPT2 (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-40141A, sc-40141B and sc-40141C.

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

NPT2 siRNA (h) is recommended for the inhibition of NPT2 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor NPT2 gene expression knockdown using RT-PCR Primer: NPT2 (h)-PR: sc-40141-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.

PROTOCOLS

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