SANTA CRUZ BIOTECHNOLOGY, INC.

PHEX siRNA (h): sc-61334

BACKGROUND

The PHEX (phosphate regulating gene with homologies to endopeptidases on the X chromosome) gene encodes a 749 amino acid protein that putatively consists of an intracellular, transmembrane and extracellular domain. PHEX mutations have been observed in 60-80% of hypophosphatemic rickets patients. The PHEX protein, which is a single-pass membrane protein, is also designated HYP, X-linked hypophosphatemia protein or metalloendopeptidase homolog PEX. PHEX plays an active role in bone and dentin mineralization and renal phosphate re-absorption. X-linked hypophosphatemic rickets, also designated HYP, is an X-linked dominant disorder characterized by impaired phosphate uptake in the kidney, which is likely to be caused by abnormal regulation of sodium phosphate cotransport in the proximal tubules. Clinical manifestations include skeletal deformities, growth failure, craniosynostosis, paravertebral calcifications, pseudofractures in lower extremities, and muscular hypotonia with onset in early childhood.

REFERENCES

1. Francis, F., et al. 1997. Genomic organization of the human PEX gene mutated in X-linked dominant hypophosphatemic rickets. Genome Res. 7: 573-585.
2. Guo, R. and Quarles, L.D. 1997. Cloning and sequencing of human PEX from a bone cDNA library: evidence for its developmental stage-specific regulation in osteoblasts. J. Bone Miner. Res. 12: 1009-1017.
3, Sato, K., et al. 2000. Three novel PHEX gene mutations in Japanese patients with X-linked hypophosphatemic rickets. Pediatr. Res. 48: 536-540.
4. Tyynismaa, H., et al. 2000. Identification of fifteen novel PHEX gene mutations in Finnish patients with hypophosphatemic rickets. Hum. Mutat. 15: 383-384.
5. Tanaka, H. 2001. Hypophosphatemia and rickets/osteomalacia. Clin. Calcium 11: 1282-1289.
6. Liu, S., et al. 2003. Regulation of fibroblastic growth factor 23 expression but not degradation by PHEX. J. Biol. Chem. 278: 37419-27426.
7. Liu, S., et al. 2005. Role of matrix extracellular phosphoglycoprotein in the pathogenesis of X-linked hypophosphatemia. J. Am. Soc. Nephrol. 16: 1645-1653.

CHROMOSOMAL LOCATION

Genetic locus: PHEX (human) mapping to Xp22.11.

PRODUCT

PHEX 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 PHEX shRNA Plasmid (h): sc-61334-SH and PHEX shRNA (h) Lentiviral Particles: sc-61334-V as alternate gene silencing products.

For independent verification of PHEX (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-61334A, sc-61334B and sc-61334C.

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

PHEX siRNA (h) is recommended for the inhibition of PHEX 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 PHEX gene expression knockdown using RT-PCR Primer: PHEX (h)-PR: sc-61334-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Priya, L.B., et al. 2017. Neferine ameliorates cardiomyoblast apoptosis induced by doxorubicin: possible role in modulating NADPH oxidase/ROS-mediated NFκB redox signaling cascade. Sci. Rep. 7: 12283.

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.