SANTA CRUZ BIOTECHNOLOGY, INC.

P4HA3 siRNA (h): sc-97000

BACKGROUND

Prolyl 4-hydroxylase plays a key role in collagen synthesis. Composed of two identical α subunits and two β subunits, prolyl 4-hydroxylase assists in the formation of 4-hydroxyproline, which ensures proper folding of newly synthesized procollagen chains. P4HA3 (prolyl 4-hydroxylase, α polypeptide III), also known as procollagen-proline,2-oxoglutarate-4-dioxygenase subunit α-3, is a 544 amino acid protein that encodes an α subunit of prolyl 4-hydroxylase. Localizing to the lumen of the endoplasmic reticulum, P4HA3 is highly expressed in liver, placenta and fetal skin, with lower levels of expression in skeletal muscle, lung, fibroblast and both fetal liver and epiphyseal cartilage. P4HA3 exists as two alternatively spliced isoforms, belongs to the P4HA family, contains one TPR repeat, a Fe2OG dioxygenase domain, and is encoded by a gene that maps to human chromosome 11q13.4.

REFERENCES

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2. Van Den Diepstraten, C., et al. 2003. Cloning of a novel prolyl 4-hydroxylase subunit expressed in the fibrous cap of human atherosclerotic plaque. Circulation 108: 508-511.
3. Kukkola, L., et al. 2003. Identification and characterization of a third human, rat, and mouse collagen prolyl 4-hydroxylase isoenzyme. J. Biol. Chem. 278: 47685-47693.
4. Online Mendelian Inheritance in Man, OMIM™. 2004. Johns Hopkins University, Baltimore, MD. MIM Number: 608987. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
5. Koivunen, P., et al. 2006. The length of peptide substrates has a marked effect on hydroxylation by the hypoxia-inducible factor prolyl 4-hydroxylases. J. Biol. Chem. 281: 28712-28720.
6. Myllyharju, J. 2008. Prolyl 4-hydroxylases, key enzymes in the synthesis of collagens and regulation of the response to hypoxia, and their roles as treatment targets. Ann. Med. 40: 402-417.

CHROMOSOMAL LOCATION

Genetic locus: P4HA3 (human) mapping to 11q13.4.

PRODUCT

P4HA3 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 P4HA3 shRNA Plasmid (h): sc-97000-SH and P4HA3 shRNA (h) Lentiviral Particles: sc-97000-V as alternate gene silencing products.

For independent verification of P4HA3 (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-97000A, sc-97000B and sc-97000C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

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

P4HA3 siRNA (h) is recommended for the inhibition of P4HA3 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 P4HA3 gene expression knockdown using RT-PCR Primer: P4HA3 (h)-PR: sc-97000-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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