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Keratocan siRNA (h): sc-44701

BACKGROUND

Small leucine-rich proteoglycans (SLRPs) such as Decorin, Biglycan, Fibromodulin, Keratocan, Lumican and Osteoglycin mediate extracellular matrix organization and are binding partners of TGF β . The Decorin core protein binds to growth factors, intercellular matrix molecules such as Fibronectin and Thrombospondin, and to the Decorin endocytosis receptor. Fibromodulin is a collagen-binding keratan sulphate proteoglycan that influences adhesion processes of connective tissue and plays a role in fibrillogenesis by regulating Collagen fibril spacing and thickness. Keratocan develops corneal transparency and maintains the stromal matrix structure. Keratocan (KTN) is a secreted protein in the extracellular matrix that binds to keratan sulfate chains. Keratocan is mainly detected in the cornea, but can also be expressed in trachea, intestine, ovary, lung and skeletal muscle. Defects in the gene encoding for Keratocan can cause cornea plana 2 (CNA2), which is an autosomal recessive disorder where the forward convex curvature of the cornea is flattened.

REFERENCES

1. Tasheva, E.S., et al. 1999. Structure and sequence of the gene encoding human Keratocan. *DNA Seq.* 10: 67-74.
2. Lehmann, O.J., et al. 2001. A novel Keratocan mutation causing autosomal recessive cornea plana. *Invest. Ophthalmol Vis. Sci.* 42: 3118-3122.
3. Wentz-Hunter, K., et al. 2001. Keratocan expression is increased in the stroma of keratoconus corneas. *Mol. Med.* 7: 470-477.
4. Carlson, E.C., et al. 2005. Keratocan, a cornea-specific keratan sulfate proteoglycan, is regulated by Lumican. *J. Biol. Chem.* 280: 25541-25547.
5. Kawakita, T., et al. 2005. Keratocan expression of murine keratocytes is maintained on amniotic membrane by down-regulating TGF β signaling. *J. Biol. Chem.* 280: 27085-27092.
6. Ebenezer, N.D., et al. 2005. Clinical and molecular characterization of a family with autosomal recessive cornea plana. *Arch. Ophthalmol.* 123: 1248-1253.

CHROMOSOMAL LOCATION

Genetic locus: KERA (human) mapping to 12q21.33.

PRODUCT

Keratocan 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Keratocan shRNA Plasmid (h): sc-44701-SH and Keratocan shRNA (h) Lentiviral Particles: sc-44701-V as alternate gene silencing products.

For independent verification of Keratocan (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-44701A, sc-44701B and sc-44701C.

PROTOCOLS

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

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

Keratocan siRNA (h) is recommended for the inhibition of Keratocan 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 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 Keratocan gene expression knockdown using RT-PCR Primer: Keratocan (h)-PR: sc-44701-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. Newton, I.P., et al. 2010. Adenomatous polyposis coli and hypoxia-inducible factor-1 α have an antagonistic connection. *Mol. Biol. Cell* 21: 3630-3638.

RESEARCH USE

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