SANTA CRUZ BIOTECHNOLOGY, INC.

# COL10A1 siRNA (h): sc-95312

## BACKGROUND

Collagen Type X is associated with hypertrophic chondrocytes of avian and mammalian growth plate tissues during the endochondral growth of long bones. It is a component of normal articular cartilage in adult human, growing porcine and newborn rat, and it is also present during any disruption of normal metabolic status of articular cartilage that occur with osteoarthritis. Collagen Type X is composed of three identical $\alpha$ 1(X) chains, each containing a triple-helical region flanked by a short N-terminal sequence and a larger non-collagenous C-terminal (NC1) domain. Mutations in COL10A1, the gene encoding for Collagen Type X, are associated with metaphyseal dysplasia type Schmid (SMCD) and other related forms of metaphyseal dysplasia. SMCD is characterized by short-limbed dwarfism, an outward "flaring" of the lower rib cage, bowed legs, leg pain and a hip deformity that causes the thigh bone to angle toward the center of the body.

## REFERENCES


1. Gadher, S.J., et al. 1988. Susceptibility of cartilage Collagens Type II, IX, X and XI to human synovial collagenase and neutrophil elastase. Eur. J. Biochem. 175: 1-7.
2. Gadher, S.J., et al. 1989. Cleavage of Collagen Type X by human synovial collagenase and neutrophil elastase. Matrix 9: 109-115.
3. Rucklidge, G.J., et al. 1996. Collagen Type X: a component of the surface of normal human, pig and rat articular cartilage. Biochem. Biophys. Res. Commun. 224: 297-302.
4. Barber, R.E., et al. 1997. Partial characterization of the C-terminal non-collagenous domain (NC1) of Collagen Type X. Biochem. J. 320: 479-485.
5. Jacenko, O. 2000. Genetic-engineered models of skeletal diseases. I. Collagen Type X. Methods Mol. Biol. 137: 471-490.
6. Magee, C., et al. 2005. SP3/SP1 transcription activity regulates specific expression of Collagen Type X in hypertrophic chondrocytes. J. Biol. Chem. 280: 25331-25338.
7. Chong, I.W., et al. 2006. Great potential of a panel of multiple hMTH1, SPD, ITGA11 and COL11A1 markers for diagnosis of patients with non-small cell lung cancer. Oncol. Rep. 16: 981-988.


## CHROMOSOMAL LOCATION

Genetic locus: COL10A1 (human) mapping to 6q22.1.

## PRODUCT

COL10A1 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 COL10A1 shRNA Plasmid (h): sc-95312-SH and COL10A1 shRNA (h) Lentiviral Particles: sc-95312-V as alternate gene silencing products.

For independent verification of COL10A1 (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-95312A, sc-95312B and sc-95312C.

## 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

COL10A1 siRNA (h) is recommended for the inhibition of COL10A1 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 COL10A1 gene expression knockdown using RT-PCR Primer: COL10A1 (h)-PR: sc-95312-PR (20 µl, 476 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS


1. Zadran, S., et al. 2013. miRNA and mRNA cancer signatures determined by analysis of expression levels in large cohorts of patients. Proc. Natl. Acad. Sci. USA 110: 19160-19165.


## 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.