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COL11A2 siRNA (m): sc-142459

BACKGROUND

Collagens (COLs) are fibrous, extracellular matrix proteins with high tensile strength that function as the major components of connective tissue, such as tendons and cartilage. All COL proteins contain a triple helix domain and frequently show lateral self-association in order to form complex connective tissues. There are several types of COL proteins, including fibril-forming interstitial COLs (types I, II, III and V), basement membrane COLs (type IV) and beaded filament COLs (type VI). COL11A2 (collagen, type XI, $\alpha 2$), also known as Collagen $\alpha 2$ Type XI, HKE5, PARP, STL3, DFNA13 or DFNB53, is a 1,736 amino acid secreted protein that contains one TSP N-terminal domain and is thought to play an essential role in fibrillogenesis, specifically by controlling the lateral growth of collagen fibrils. Defects in the gene encoding COL11A2 are the cause of Stickler syndrome type 3 (STL3), autosomal recessive otospondylo-megaepiphyseal dysplasia (OSMED), Weissenbacher-Zweymueller syndrome (WZS) and non-syndromic sensorineural deafness autosomal dominant type 13 (DFNA13). Eight isoforms of COL11A2 exist due to alternative splicing events.

REFERENCES

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2. Vikkula, M., et al. 1995. Autosomal dominant and recessive osteochondrodysplasias associated with the COL11A2 locus. *Cell* 80: 431-437.
3. Vuristo, M.M., et al. 1995. The human COL11A2 gene structure indicates that the gene has not evolved with the genes for the major fibrillar collagens. *J. Biol. Chem.* 270: 22873-22881.
4. Lui, V.C., et al. 1996. The human $\alpha 2$ (XI) collagen gene (COL11A2): completion of coding information, identification of the promoter sequence, and precise localization within the major histocompatibility complex reveal overlap with the KE5 gene. *Genomics* 32: 401-412.
5. Sirko-Osadsa, D.A., et al. 1998. Stickler syndrome without eye involvement is caused by mutations in COL11A2, the gene encoding the $\alpha 2$ (XI) chain of type XI collagen. *J. Pediatr.* 132: 368-371.
6. McGuirt, W.T., et al. 1999. Mutations in COL11A2 cause non-syndromic hearing loss (DFNA13). *Nat. Genet.* 23: 413-419.

CHROMOSOMAL LOCATION

Genetic locus: Col11a2 (mouse) mapping to 17 B1.

PRODUCT

COL11A2 siRNA (m) 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 COL11A2 shRNA Plasmid (m): sc-142459-SH and COL11A2 shRNA (m) Lentiviral Particles: sc-142459-V as alternate gene silencing products.

For independent verification of COL11A2 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-142459A, sc-142459B and sc-142459C.

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

COL11A2 siRNA (m) is recommended for the inhibition of COL11A2 expression in mouse 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 COL11A2 gene expression knockdown using RT-PCR Primer: COL11A2 (m)-PR: sc-142459-PR (20 μ l). 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.