

Biglycan siRNA (h): sc-43633

BACKGROUND

Biglycan, a class I small leucine rich proteoglycan (SLRP) present in the extracellular matrix, influences bone cell differentiation and proliferation. Biglycan contains two chondroitin sulfate glucosaminoglycan (GAG) chains attached near its amino terminus, whereas a closely related SLRP, Decorin, contains only one. Biglycan deficient specimens possess diminished capacity to produce bone cells precursors, a lessened response to TGF β , reduced collagen synthesis, and increased apoptosis. Patients with rheumatoid arthritis express increased immunity to Biglycan where whereas osteoarthritis patients do not, suggesting that higher immunity to SLRPs may play a role in the pathogenesis of inflammatory rheumatic diseases.

REFERENCES

1. Dodge, G.R., et al. 1998. Effects of IFN- γ and TNF α on the expression of the genes encoding aggrecan, Biglycan, and Decorin core proteins in cultured human chondrocytes. *Arthritis Rheum.* 41: 274-283.
2. Klezovitch, O. and Scanu A.M. 2001. Domains of apolipoprotein E involved in the binding to the protein core of Biglycan of the vascular extracellular matrix: potential relationship between retention and anti-atherogenic properties of this apolipoprotein. *Trends Cardiovasc. Med.* 11: 263-268.
3. Young, M.F., et al. 2002. Biglycan knockout mice: new models for musculoskeletal diseases. *Glycoconj. J.* 19: 257-262.
4. Goldberg, M., et al. 2002. Biglycan is a repressor of amelogenin expression and enamel formation: an emerging hypothesis. *J. Dent. Res.* 81: 520-524.
5. Waddington, R.J., et al. 2003. Differential roles for small leucine-rich proteoglycans in bone formation. *Eur. Cell. Mater.* 6: 12-21.

CHROMOSOMAL LOCATION

Genetic locus: BGN (human) mapping to Xq28.

PRODUCT

Biglycan 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 Biglycan shRNA Plasmid (h): sc-43633-SH and Biglycan shRNA (h) Lentiviral Particles: sc-43633-V as alternate gene silencing products.

For independent verification of Biglycan (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-43633A, sc-43633B and sc-43633C.

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

Biglycan siRNA (h) is recommended for the inhibition of Biglycan 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.

GENE EXPRESSION MONITORING

Biglycan (3E2): sc-100857 is recommended as a control antibody for monitoring of Biglycan gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Biglycan gene expression knockdown using RT-PCR Primer: Biglycan (h)-PR: sc-43633-PR (20 μ l, 551 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Song, R., et al. 2012. Biglycan induces the expression of osteogenic factors in human aortic valve interstitial cells via Toll-like receptor-2. *Arterioscler. Thromb. Vasc. Biol.* 32: 2711-2720.
2. Fujiwara-Tani, R., et al. 2020. Diabetes mellitus is associated with liver metastasis of colorectal cancer through production of Biglycan-rich cancer stroma. *Oncotarget* 11: 2982-2994.

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.