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Perlecan siRNA (h): sc-44010

BACKGROUND

Perlecan is part of a large family of heparan sulfate proteoglycans (HSPGs). As key components of cell surfaces and extracellular matrices, HSPGs modulate growth factor activities and thereby influence cell growth and differentiation. Additionally, HSPGs play a critical role in regulating tumor cell metastasis by mediating cell adhesion and the activities of growth and angiogenic factors. Perlecan consists of five distinct structural domains that interact with a number of matrix molecules, cytokines and growth factors to influence cartilage development and neuromuscular junction activity. Antithrombin, a key regulator of blood coagulation proteases, and TGF β 1 act as inhibitors and stimulators of Perlecan expression, respectively, interactions which may provide avenues for therapeutic intervention in certain types of cancer.

REFERENCES

- Hassell, J., et al. 2002. Role of Perlecan in skeletal development and diseases. *Glycoconj. J.* 19: 263-267.
- Jiang, X. and Couchman, J.R. 2003. Perlecan and tumor angiogenesis. *J. Histochem. Cytochem.* 51: 1393-1410.
- Reiland, J., et al. 2004. Heparanase degrades syndecan-1 and Perlecan heparan sulfate: functional implications for tumor cell invasion. *J. Biol. Chem.* 279: 8047-8055.
- Zhang, W., et al. 2004. Antiangiogenic antithrombin downregulates the expression of the pro-angiogenic heparan sulfate proteoglycan, Perlecan, in endothelial cells. *Blood* 103: 1185-1191.

CHROMOSOMAL LOCATION

Genetic locus: HSPG2 (human) mapping to 1p36.12.

PRODUCT

Perlecan 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 Perlecan shRNA Plasmid (h): sc-44010-SH and Perlecan shRNA (h) Lentiviral Particles: sc-44010-V as alternate gene silencing products.

For independent verification of Perlecan (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-44010A, sc-44010B and sc-44010C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20 $^{\circ}$ C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20 $^{\circ}$ 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

Perlecan siRNA (h) is recommended for the inhibition of Perlecan 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

Perlecan (E-6): sc-377219 is recommended as a control antibody for monitoring of Perlecan 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 MarkerTM 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 Perlecan gene expression knockdown using RT-PCR Primer: Perlecan (h)-PR: sc-44010-PR (20 μ l, 466 bp). Annealing temperature for the primers should be 55-60 $^{\circ}$ C and the extension temperature should be 68-72 $^{\circ}$ C.

SELECT PRODUCT CITATIONS

- Kawahara, R., et al. 2014. Agrin and Perlecan mediate tumorigenic processes in oral squamous cell carcinoma. *PLoS ONE* 9: e115004.
- Nonaka, R., et al. 2015. Perlecan deficiency causes endothelial dysfunction by reducing the expression of endothelial nitric oxide synthase. *Physiol. Rep.* 3: e12272.
- Dos Santos, M., et al. 2016. Perlecan expression influences the keratin 15-positive cell population fate in the epidermis of aging skin. *Aging* 8: 751-768.

RESEARCH USE

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