SANTA CRUZ BIOTECHNOLOGY, INC.

Sulf-1 siRNA (h): sc-77686

BACKGROUND

Sulf-1 (sulfatase 1), also known as HSULF-1, is an 871 amino acid protein that localizes to both the endoplasmic reticulum and the golgi apparatus and belongs to the sulfatase family. Members of the sulfatase family each contain a conserved active site with a posttranslationally generated α-formylglycine that is essential for their catalytic activity. These enzymes are responsible for the hydrolysis of sulfate ester bonds. Sulf-1 and Sulf-2 (sulfatase 2) specifically interact with heparin sulfate proteoglycans (HSPGs) and hydrolyze glucosamine-6-sulfate modifications, thus regulating the interactions of HSPGs with a variety of signaling molecules. 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. This suggests an important role for Sulf-1 and Sulf-2 in tumor progression.

REFERENCES

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2. Saad, O.M., et al. 2005. Compositional profiling of heparin/heparan sulfate using mass spectrometry: assay for specificity of a novel extracellular human endosulfatase. Glycobiology 15: 818-826.
3. Dai, Y., et al. 2005. HSulf-1 and HSulf-2 are potent inhibitors of myeloma tumor growth *in vivo*. J. Biol. Chem. 280: 40066-40073.
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5. Uchimura, K., et al. 2006. Measuring the activities of the Sulfs: two novel heparin/heparan sulfate endosulfatases. Meth. Enzymol. 416: 243-253.
6. Sjöblom, T., et al. 2006. The consensus coding sequences of human breast and colorectal cancers. Science 314: 268-274.
7. Lyon, M., et al. 2006. HSulf-2, an extracellular endoglucosamine-6-sulfatase, selectively mobilizes heparin-bound growth factors and chemokines: effects on VEGF, FGF-.and SDF-1. BMC Biochem. 7: 2.
8. Ghosh, D. 2007. Human sulfatases: a structural perspective to catalysis. Cell. Mol. Life Sci. 64: 2013-2022.
9. Nawroth, R., et al. 2007. Extracellular sulfatases, elements of the Wnt signaling pathway, positively regulate growth and tumorigenicity of human pancreatic cancer cells. PLoS ONE 2: e392.

CHROMOSOMAL LOCATION

Genetic locus: SULF1 (human) mapping to 8q13.2.

PROTOCOLS

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

PRODUCT

Sulf-1 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 Sulf-1 shRNA Plasmid (h): sc-77686-SH and Sulf-1 shRNA (h) Lentiviral Particles: sc-77686-V as alternate gene silencing products.

For independent verification of Sulf-1 (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-77686A, sc-77686B and sc-77686C.

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

Sulf-1 siRNA (h) is recommended for the inhibition of Sulf-1 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 Sulf-1 gene expression knockdown using RT-PCR Primer: Sulf-1 (h)-PR: sc-77686-PR (20 µl). 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.