SANTA CRUZ BIOTECHNOLOGY, INC.

ADAMTS-5 siRNA (h): sc-91432

BACKGROUND

ADAMTS (a disintegrin and metalloproteinase domain with Thrombospondin type 1 modules) proteins comprise a family of zinc-dependent proteases that are implicated in a variety of normal and pathological conditions, including arthritis and cancer. ADAMTS family members contain an N-terminal propeptide domain, a metalloproteinase domain, a disintegrin-like domain and a C-terminus that contains a varying number of Thrombospondin type 1 (TSP-1) motifs. ADAMTS-5, also known as ADAMTS-11 or ADMP2, is a 930 amino acid secreted protein that localizes to the extracellular matrix and contains one disintegrin domain, one peptidase M12B domain and two TSP type 1 domains. Expressed at low levels in heart, brain, bladder, cervix and placental tissue, ADAMTS-5 uses zinc as a cofactor to catalyze the cleavage of aggregan (a cartilage proteoglycan) and is thought to be involved in aggregan turnover, specifically in the destruction of aggregan in arthritic diseases. Due to its involvement in aggregan degradation, ADAMTS-5 is thought to play a role in the pathogenesis of osteoarthritis. The ADAMTS-5 precursor is processed by Furin endopeptidase to yield a smaller, active form of the expressed protein.

REFERENCES

1. Hurskainen, T.L., et al. 1999. ADAMTS-5, ADAMTS-6, and ADAMTS-7, novel members of a new family of zinc metalloproteases. General features and genomic distribution of the ADAMTS family. J. Biol. Chem. 274: 25555-25563.
2. Tortorella, M.D., et al. 2004. α_2-macroglobulin is a novel substrate for ADAMTS-4 and ADAMTS-5 and represents an endogenous inhibitor of these enzymes. J. Biol. Chem. 279: 17554-17561.
3. Held-Feindt, J., et al. 2006. Matrix-degrading proteases ADAMTS-4 and ADAMTS-5 (disintegrins and metalloproteinases with Thrombospondin motifs 4 and 5) are expressed in human glioblastomas. Int. J. Cancer 118: 55-61.
4. Zhu, H., et al. 2007. Expression of ADAMTS-5/implantin in human decidual stromal cells: regulatory effects of cytokines. Hum. Reprod. 22: 63-74.
5. Gendron, C., et al. 2007. Proteolytic activities of human ADAMTS-5: comparative studies with ADAMTS-4. J. Biol. Chem. 282: 18294-18306.
6. Malfait, A.M., et al. 2008. Proprotein convertase activation of aggrecanases in cartilage *in situ*. Arch. Biochem. Biophys. 478: 43-51.

CHROMOSOMAL LOCATION

Genetic locus: ADAMTS5 (human) mapping to 21q21.3.

PRODUCT

ADAMTS-5 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 ADAMTS-5 shRNA Plasmid (h): sc-91432-SH and ADAMTS-5 shRNA (h) Lentiviral Particles: sc-91432-V as alternate gene silencing products.

For independent verification of ADAMTS-5 (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-91432A, sc-91432B and sc-91432C.

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

ADAMTS-5 siRNA (h) is recommended for the inhibition of ADAMTS-5 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 ADAMTS-5 gene expression knockdown using RT-PCR Primer: ADAMTS-5 (h)-PR: sc-91432-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.

PROTOCOLS

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