SANTA CRUZ BIOTECHNOLOGY, INC.

ADAMTS-7 siRNA (m): sc-140869

BACKGROUND

ADAMTS (a disintegrin and metalloproteinase domain with thrombospondin type-1 modules) is a family of zinc-dependent proteases that are implicated in a variety of normal and pathological conditions, including arthritis and cancer. ADAMTS protein 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 genes are primarily expressed in fetal tissues, including lung, kidney and liver. ADAMTS-7 (ADAM metallopeptidase with thrombospondin type 1 motif, 7), also known as COMPase, is a 1,686 amino acid protein that exists as two alternatively spliced isoforms. Encoded by a gene that maps to human chromosome 15q25.1, ADAMTS-7 contains eight TSP-1 motifs and binds one zinc ion per subunit. ADAMTS-7 is expressed in heart, brain, placenta, lung, liver, skeletal muscle, kidney and pancreas. ADAMTS-7 is also located in meniscus, bone, tendon, cartilage, synovium, fat and ligaments, and is up-regulated in articular cartilage and synovium in arthritis patients. ADAMTS-7 functions as a metalloprotease and may play a role in the degradation of COMP. ADAMTS-7 is pH dependent, with optimum pH between 7.5 and 9.5.

REFERENCES

1. Hurskainen, T.L., et al. 1999. ADAM-TS5, ADAM-TS6, and ADAM-TS7, novel members of a new family of zinc metalloproteases. General features and genomic distribution of the ADAM-TS family. J. Biol. Chem. 274: 25555-25563.
2. Tang, B.L. 2001. ADAMTS: a novel family of extracellular matrix proteases. Int. J. Biochem. Cell Biol. 33: 33-44.
3. Somerville, R.P., et al. 2004. ADAMTS7B, the full-length product of the ADAMTS7 gene, is a chondroitin sulfate proteoglycan containing a mucin domain. J. Biol. Chem. 279: 35159-35175.
4. Liu, C.J., et al. 2006. ADAMTS-7: a metalloproteinase that directly binds to and degrades cartilage oligomeric matrix protein. FASEB J. 20: 988-990.
5. Luan, Y., et al. 2008. Inhibition of ADAMTS-7 and ADAMTS-12 degradation of cartilage oligomeric matrix protein by α-2-macroglobulin. Osteoarthr. Cartil. 16: 1413-1420.

CHROMOSOMAL LOCATION

Genetic locus: Adamts7 (mouse) mapping to 9 E3.1.

PRODUCT

ADAMTS-7 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see ADAMTS-7 shRNA Plasmid (m): sc-140869-SH and ADAMTS-7 shRNA (m) Lentiviral Particles: sc-140869-V as alternate gene silencing products.

For independent verification of ADAMTS-7 (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-140869A, sc-140869B and sc-140869C.

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-7 siRNA (m) is recommended for the inhibition of ADAMTS-7 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 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-7 gene expression knockdown using RT-PCR Primer: ADAMTS-7 (m)-PR: sc-140869-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.