SANTA CRUZ BIOTECHNOLOGY, INC.

MMP-19 siRNA (h): sc-106229

BACKGROUND

Matrix metalloproteinases (MMPs) are zinc-binding endopeptidases that degrade various components of the extracellular matrix. MMP-19 (RASI-1, MMP-18) is a 508 amino acid peptide, originally isolated as an autoantigen from the synovium of a patient suffering from rheumatoid arthritis (RA). Its presence on the surface of activated PBMCs, TH1 lymphocytes, and Jurkat T lymphoma cells in the synovium of acute RA patients, suggests that MMP-19 plays a role in RA-associated joint tissue destruction. MMP-19 exists in the smooth muscle cells of the tunica media of large blood vessels of the RA patient, but not in the endothelial cell layer. Acutely inflamed tissue synovial capillaries strongly express MMP-19 in the cytoplasm. Regulated induction of MMP-19 in capillary endothelial cells during acute inflammation suggest a role in angiogenesis. MMP-19 is a single 2.7 kb transcript found in mammary gland, placenta, lung, pancreas, ovary, small intestine, spleen, thymus, prostate, testis, colon, and heart. MMP-19 is undected in brain, skeletal muscle, liver, kidney, and peripheral blood leukocytes. The human MMP-19 gene maps to chromosome 12q13.2.

REFERENCES

1. Cossins, J., Dudgeon, T.J., Catlin, G., Gearing, A.J. and Clements, J.M. 1996. Identification of MMP-18, a putative novel human matrix metalloproteinase. Biochem. Biophys. Res. Commun. 228: 494-498.
2. Pendas, A.M., Knauper, V., Puente, X.S., Llano, E., Mattei, M.G., Apte, S., Murphy, G. and Lopez-Otin, C. 1997. Identification and characterization of a novel uman matrix metalloproteinase wiht unique structural characteristics, chromosomal location, and tissue distribution. J. Biol. Chem. 272: 4281-4286.
3. Sedlacek, R., Mauch, S., Kolb, B., Schatzlein, C., Eibel, H., Peter, H.H., Schmitt, J. and Krawinkel, U. 1998. Matrix metalloproteinase MMP-19 (RASI-1) is expressed on the surface of activated peripheral blood mononuclear cells and is detected as an autoantigen in rheumatoid arthritis. Immunobiology 198: 408-423.
4. Kolb, C., Mauch, S., Krawinkel, U. and Sedlacek, R. 1999. Matrix metalloproteinase-19 in capillary endothelial cells: expression in acutely, but not in the chronically, inflamed synovium. Exp. Cell Res. 250: 122-130.

CHROMOSOMAL LOCATION

Genetic locus: MMP19 (human) mapping to 12q13.2.

PRODUCT

MMP-19 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 MMP-19 shRNA Plasmid (h): sc-106229-SH and MMP-19 shRNA (h) Lentiviral Particles: sc-106229-V as alternate gene silencing products.

For independent verification of MMP-19 (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-106229A, sc-106229B and sc-106229C.

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

MMP-19 siRNA (h) is recommended for the inhibition of MMP-19 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 MMP-19 gene expression knockdown using RT-PCR Primer: MMP-19 (h)-PR: sc-106229-PR (20 µl, 488 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Zhao, H., Yang, Z., Wang, X., Zhang, X., Wang, M., Wang, Y., Mei, Q. and Wang, Z. 2012. Triptolide inhibits ovarian cancer cell invasion by repression of matrix metalloproteinase 7 and 19 and upregulation of E-cadherin. Exp. Mol. Med. 44: 633-641.

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.