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SANTA CRUZ BIOTECHNOLOGY, INC.

MMP-10 siRNA (m): sc-41556

BACKGROUND

The matrix metalloproteinases (MMP) are a family of peptidase enzymes responsible for the degradation of extracellular matrix components, including collagen, gelatin, Fibronectin, Laminin and proteoglycan. Transcription of MMP genes is differentially activated by phorbol ester, lipopolysaccharide (LPS) or staphylococcal enterotoxin B (SEB). MMP catalysis requires both calcium and zinc. MMP-10, also known as Stromelysin-2, is expressed in small intestine and at lower levels in lung and heart. MMP-10 functions similarly to MMP-3 in that it can degrade Fibronectin and gelatins type I, III, IV and IV, however its action on collagens III, IV and V is very weak. Significantly, expression of MMP-10 is upregulated in ras-transformed HaCaT II-4 keratinocytes, therefore enabling the cells to undergo epithelial-to-mesenchymal transition. This evidence suggests that MMP-10, as well as other matrix metalloproteinases, may play a significant role in tumor metastasis.

REFERENCES

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4. Järvinen, K., et al. 2008. Selective iNOS inhibitor 1400W enhances anticatabolic IL-10 and reduces destructive MMP-10 in OA cartilage. Survey of the effects of 1400W on inflammatory mediators produced by OA cartilage as detected by protein antibody array. Clin. Exp. Rheumatol. 26: 275-282.
5. Páramo, J.A., et al. 2008. Association between matrix metalloproteinase-10 concentration and smoking in individuals without cardiovascular disease. Rev. Esp. Cardiol. 61: 1267-1273.
6. Eiseler, T., et al. 2009. Protein kinase D1 regulates matrix metalloproteinase expression and inhibits breast cancer cell invasion. Breast Cancer Res. 11: R13.
7. Wilkins-Port, C.E., et al. 2009. TGF-β1 + EGF-initiated invasive potential in transformed human keratinocytes is coupled to a plasmin/MMP-10/MMP-1-dependent collagen remodeling axis: role for PAI-1. Cancer Res. 69: 4081-4091.
8. Cuadrado, E., et al. 2009. Vascular MMP-9/TIMP-2 and neuronal MMP-10 up-regulation in human brain after stroke: a combined laser microdissection and protein array study. J. Proteome Res. 8: 3191-3197.
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CHROMOSOMAL LOCATION

Genetic locus: Mmp10 (mouse) mapping to 9 A1.

PRODUCT

MMP-10 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 MMP-10 shRNA Plasmid (m): sc-41556-SH and MMP-10 shRNA (m) Lentiviral Particles: sc-41556-V as alternate gene silencing products.

For independent verification of MMP-10 (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-41556A, sc-41556B and sc-41556C.

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-10 siRNA (m) is recommended for the inhibition of MMP-10 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 MMP-10 gene expression knockdown using RT-PCR Primer: MMP-10 (m)-PR: sc-41556-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Mao, L., et al. 2013. Role of matrix metalloproteinase-10 in the BMP-2 inducing osteoblastic differentiation. Endocr. J. 60: 1309-1319.

RESEARCH USE

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