SANTA CRUZ BIOTECHNOLOGY, INC.

MMP-2 siRNA (h): sc-29398

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The Power to Question

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-2 (also designated type IV collagenase) cleaves collagen types IV, V, VII and X and gelatin type I. Activation of MMP-2 secretion requires the Ras signaling pathway.

CHROMOSOMAL LOCATION

Genetic locus: MMP2 (human) mapping to 16q12.2.

PRODUCT

MMP-2 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-2 shRNA Plasmid (h): sc-29398-SH and MMP-2 shRNA (h) Lentiviral Particles: sc-29398-V as alternate gene silencing products.

For independent verification of MMP-2 (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-29398A, sc-29398B and sc-29398C.

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-2 siRNA (h) is recommended for the inhibition of MMP-2 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.

GENE EXPRESSION MONITORING

MMP-2 (2C1): sc-13594 is recommended as a control antibody for monitoring of MMP-2 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MMP-2 gene expression knockdown using RT-PCR Primer: MMP-2 (h)-PR: sc-29398-PR (20 µl, 545 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

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3. Hou, C.H., et al. 2011. WISP-1 increases MMP-2 expression and cell motility in human chondrosarcoma cells. Biochem. Pharmacol. 81: 1286-1295.
4. Lee, H., et al. 2013. MT1-MMP regulates MMP-2 expression and angiogenesis-related functions in human umbilical vein endothelial cells. Biochem. Biophys. Res. Commun. 437: 232-238.
5. Zhao, Y., et al. 2014. Ang II-AT1R increases cell migration through PI3K/Akt and NFκB pathways in breast cancer. J. Cell. Physiol. 229: 1855-1862.
6. Platt, D., et al. 2014. Violacein inhibits matrix metalloproteinase mediated CXCR4 expression: potential anti-tumor effect in cancer invasion and metastasis. Biochem. Biophys. Res. Commun. 455: 107-112.
7. Yang, S., et al. 2015. Cigarette smoke modulates PC3 prostate cancer cell migration by altering adhesion molecules and the extracellular matrix. Mol. Med. Rep. 12: 6990-6996.
8. Yang, J.R., et al. 2016. Kindlin-2 promotes invasiveness of prostate cancer cells via NFκB-dependent upregulation of matrix metalloproteinases. Gene 576: 571-576.
9. Zanotto-Filho, A., et al. 2017. Inflammatory landscape of human brain tumors reveals an NFκB dependent cytokine pathway associated with mesenchymal glioblastoma. Cancer Lett. 390: 176-187.
10. Webb, A.H., et al. 2017. Inhibition of MMP-2 and MMP-9 decreases cellular migration, and angiogenesis in *in vitro* models of retinoblastoma. BMC Cancer 17: 434.
11. Ukaji, T., et al. 2017. Inhibition of MMP-2-mediated cellular invasion by NFκB inhibitor DHMEQ in 3D culture of breast carcinoma MDA-MB-231 cells: A model for early phase of metastasis. Biochem. Biophys. Res. Commun. 485: 76-81.

RESEARCH USE

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