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MT-MMP-2 siRNA (m): sc-41568

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. Membrane-type matrix metalloproteinases, including MT-MMP-1, MT-MMP-2, MT-MMP-3 and MT-MMP-4, are type I membrane proteins that function to activate other MMPs. MT-MMP activation appears to be mediated by members of the proprotein convertase family, suggesting that a proprotein convertase/MT-MMP/MMP cascade may be involved in the regulation of ECM turnover. MT-MMP-2, also designated MMP-15, is a 669 amino acid protein that is preferentially synthesized in testis, liver, intestine, colon and placenta.

REFERENCES

- Will, H., et al. 1995. cDNA sequence and mRNA tissue distribution of a novel human matrix metalloproteinase with a potential transmembrane segment. *Eur. J. Biochem.* 231: 602-608.
- Takino, T., et al. 1995. Identification of the second membrane-type matrix metalloproteinase (MT-MMP-2) gene from a human placenta cDNA library. MT-MMPs form a unique membrane-type subclass in the MMP family. *J. Biol. Chem.* 270: 23013-23020.
- d'Ortho, M.P., et al. 1997. Membrane-type matrix metalloproteinases 1 and 2 exhibit broad-spectrum proteolytic capacities comparable to many matrix metalloproteinases. *Eur. J. Biochem.* 250: 751-757.
- Sato, H., et al. 1997. Assignment of the human genes for membrane-type-1, -2, and -3 matrix metalloproteinases (MMP-14, MMP-15, and MMP-16), to 14q12.2, 16q12.2-q21, and 8q21, respectively, by *in situ* hybridization. *Genomics* 39: 412-413.
- Mattei, M.G., et al. 1997. Genes of the membrane-type matrix metalloproteinase (MT-MMP) gene family, MMP-14, MMP-15, and MMP-16, localize to human chromosomes 14, 16, and 8, respectively. *Genomics* 40: 168-169.
- Tyagi, S.C., et al. 1998. Stretch-induced membrane type matrix metalloproteinase and tissue plasminogen activator in cardiac fibroblast cells. *J. Cell. Physiol.* 176: 374-382.

CHROMOSOMAL LOCATION

Genetic locus: *Mmp15* (mouse) mapping to 8 D1.

PRODUCT

MT-MMP-2 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see MT-MMP-2 shRNA Plasmid (m): sc-41568-SH and MT-MMP-2 shRNA (m) Lentiviral Particles: sc-41568-V as alternate gene silencing products.

For independent verification of MT-MMP-2 (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-41568A, sc-41568B and sc-41568C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

MT-MMP-2 siRNA (m) is recommended for the inhibition of MT-MMP-2 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 μ M in 66 μ l. 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 MT-MMP-2 gene expression knockdown using RT-PCR Primer: MT-MMP-2 (m)-PR: sc-41568-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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