

MT-MMP-4 siRNA (m): sc-35980

BACKGROUND

The matrix metalloproteinases (MMPs) are a family of peptidase enzymes responsible for the degradation of extracellular matrix components, including collagen, gelatin, fibronectin, laminin and proteoglycan. MMP catalysis requires both calcium and zinc. MT-MMP-4 (also known as MMP-17 or MT4-MMP) is a glycosylphosphatidylinositol (GPI)-anchored proteinase. The zinc-dependent MMP has a unique specificity among synthetic substrates and the capability to degrade gelatin and activate progelatinase A. MT-MMP-4 is mainly expressed in the brain, leukocytes, colon, ovary and testis. In addition, MMP-4 is expressed in all breast carcinomas. The human MT-MMP-5 (also known as MMP-24 or MT5-MMP) gene maps to chromosome 20q11.22, a region frequently amplified in tumors. MMP-5 is predominantly expressed in brain, kidney, pancreas and lung. MT-MMP-5 is also expressed at high levels in brain tumors compared to normal brain tissue. MT-MMP-6 (also known as MMP-25, MT6-MMP or Leukolysin) is the second GPI-anchored proteinase in the MMP family. A C-terminal-truncated MMP-6 protein is expressed as a strong gelatinolytic species that is derived from a cell-associated proenzyme. MT-MMP-6 is expressed in leukocytes, lung and spleen.

REFERENCES

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2. Reinemer, P., et al. 1994. Structural implications for the role of the N terminus in the "superactivation" of collagenases. A crystallographic study. *FEBS Lett.* 338: 227-233.
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4. Wang, Y., et al. 1999. Catalytic activities and substrate specificity of the human membrane type 4 matrix metalloproteinase catalytic domain. *J. Biol. Chem.* 274: 33043-33049.
5. Itoh, Y., et al. 1999. Membrane type 4 matrix metalloproteinase (MT4-MMP, MMP-17) is a glycosylphosphatidylinositol-anchored proteinase. *J. Biol. Chem.* 274: 34260-34266.
6. Llano, E., et al. 1999. Identification and characterization of human MT5-MMP, a new membrane-bound activator of progelatinase A overexpressed in brain tumors. *Cancer Res.* 59: 2570-2576.
7. Kojima, S., et al. 2000. Membrane-type 6 matrix metalloproteinase (MT6-MMP, MMP-25) is the second glycosyl-phosphatidyl inositol (GPI)-anchored MMP. *FEBS Lett.* 480: 142-146.
8. Velasco, G., et al. 2000. Human MT6-matrix metalloproteinase: identification, progelatinase A activation, and expression in brain tumors. *Cancer Res.* 60: 877-882.

CHROMOSOMAL LOCATION

Genetic locus: Mmp17 (mouse) mapping to 5 G1.3.

RESEARCH USE

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

PRODUCT

MT-MMP-4 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-4 shRNA Plasmid (m): sc-35980-SH and MT-MMP-4 shRNA (m) Lentiviral Particles: sc-35980-V as alternate gene silencing products.

For independent verification of MT-MMP-4 (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-35980A, sc-35980B and sc-35980C.

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-4 siRNA (m) is recommended for the inhibition of MT-MMP-4 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-4 gene expression knockdown using RT-PCR Primer: MT-MMP-4 (m)-PR: sc-35980-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.