SANTA CRUZ BIOTECHNOLOGY, INC.

MT-MMP-4 siRNA (h): sc-35979

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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3. Puente, X.S., et al. 1996. Molecular cloning of a novel membrane-type matrix metalloproteinase from a human breast carcinoma. Cancer Res. 56: 944-949.
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.
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CHROMOSOMAL LOCATION

Genetic locus: MMP17 (human) mapping to 12q24.33.

RESEARCH USE

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

PRODUCT

MT-MMP-4 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 MT-MMP-4 shRNA Plasmid (h): sc-35979-SH and MT-MMP-4 shRNA (h) Lentiviral Particles: sc-35979-V as alternate gene silencing products.

For independent verification of MT-MMP-4 (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-35979A, sc-35979B and sc-35979C.

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

MT-MMP-4 siRNA (h) is recommended for the inhibition of MT-MMP-4 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 MT-MMP-4 gene expression knockdown using RT-PCR Primer: MT-MMP-4 (h)-PR: sc-35979-PR (20 µl). 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.