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SANTA CRUZ BIOTECHNOLOGY, INC.

MMP-1a siRNA (m): sc-149479

SANTA CRUZ BIOTECHNOLOGY

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-1a (matrix metalloproteinase-1a), also known as Mcol-A or interstitial collagenase A, is a 464 amino acid secreted protein that localizes to extracellular matrix and belongs to the peptidase M10A family. Like other MMP family members, MMP-1a cleaves various collagens and can also degrade synthetic peptides. Containing four hemopexin-like domains, MMP-1a binds two zinc ions and four calcium ions per subunit, and is encoded by a gene that maps to murine chromosome 9 A1.

REFERENCES

1. Balbín, M., et al. 2001. Identification and enzymatic characterization of two diverging murine counterparts of human interstitial collagenase (MMP-1) expressed at sites of embryo implantation. J. Biol. Chem. 276: 10253-10262.
2. Roeb, E., et al. 2003. Matrix metalloproteinases and colorectal cancer. Med. Klin. 98: 763-770.
3. Chen, L., et al. 2007. Expression of extracellular matrix metalloproteinase inducer and matrix metalloproteinases during mouse embryonic development. Reproduction 133: 405-414.
4. McGowan, P.M., et al. 2008. Matrix metalloproteinase expression and outcome in patients with breast cancer: analysis of a published database. Ann. Oncol. 19: 1566-1572.
5. Pfaffen, S., et al. 2010. Isolation and characterization of human monoclonal antibodies specific to MMP-1a, MMP-2 and MMP-3. Exp. Cell Res. 316: 836-847.

CHROMOSOMAL LOCATION

Genetic locus: Mmp1a (mouse) mapping to 9 A1.

PRODUCT

MMP-1a 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-1a shRNA Plasmid (m): sc-149479-SH and MMP-1a shRNA (m) Lentiviral Particles: sc-149479-V as alternate gene silencing products.

For independent verification of MMP-1a (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-149479A, sc-149479B and sc-149479C.

PROTOCOLS

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

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-1a siRNA (m) is recommended for the inhibition of MMP-1a 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-1a gene expression knockdown using RT-PCR Primer: MMP-1a (m)-PR: sc-149479-PR (20 µl, 488 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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