

MMP-23 siRNA (h): sc-41563

BACKGROUND

Matrix metalloproteinases (MMPs) are highly homologous Zn²⁺ endopeptidases involved in extracellular matrix breakdown. MMP mediated extracellular remodeling occurs in normal physiological processes, such as embryonic development, reproduction, and tissue remodeling, and disease processes, including arthritis and metastasis. MMP-23 exhibits sequence similarity with most MMPs, but displays a difference in domain structure. The MMP-23 protein contains prepro-, catalytic, cysteine-rich, Interleukin-1 receptor-related, and proline-rich domains. Lacking a recognizable signal sequence, MMP-23 has a short prodomain. In addition, MMP-23 contains a single cysteine residue that can be part of the cysteine-switch mechanism operation for maintaining enzyme latency. MMP-23 is a membrane-anchored glycoprotein with type II topology. Subcellular localization is predominantly perinuclear. A dramatic switch in MMP-23 mRNA localization from granulosa cells to theca-externa/fibroblasts and ovarian surface epithelium occurs during follicular development. MMP-23 is expressed in ovary, testis, and prostate, suggesting that MMP-23 plays a specialized role in the reproductive processes. The human MMP-23 gene maps to chromosome 1p36.33.

REFERENCES

1. Birkedal-Hansen, H., Moore, W.G., Bodden, M.K., Windsor, L.J., Birkedal-Hansen, B., DeCarlo, A. and Engler, J.A. 1993. Matrix metalloproteinases: a review. *Crit. Rev. Oral Biol. Med.* 2: 197-250.
2. Gururajan R., Grenet, J., Lahti, J.M. and Kidd, V. J. 1998. Isolation and characterization of two novel metalloproteinase genes linked to the Cdc2L locus on human chromosome 1p36.3. *Genomics* 1: 101-106.
3. Velasco, G., Pendas, A.M., Rueyo, A., Knauper, V., Murphy, G. and Lopez-Otin, C. 1999. Cloning and characterization of human MMP-23, a new matrix metalloproteinase predominantly expressed in reproductive tissues and lacking conserved domains in other family members. *J. Biol. Chem.* 8: 4570-4576.
4. Ohnishi, J., Ohnishi, E., Jin, M., Hirano, W., Nakane, D., Matsui, H., Kimura, A., Sawa, H., Nakayama, K., Shibuya, H., Nagashima, K. and Takahashi, T. 2001. Cloning and characterization of a rat ortholog of MMP-23 (matrix metalloproteinase-23), a unique type of membrane-anchored matrix metalloproteinase and conditioned switching of its expression during the ovarian follicular development. *Mol. Endocrinol.* 5: 747-764.

CHROMOSOMAL LOCATION

Genetic locus: MMP23B (human) mapping to 1p36.33.

PRODUCT

MMP-23 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see MMP-23 shRNA Plasmid (h): sc-41563-SH and MMP-23 shRNA (h) Lentiviral Particles: sc-41563-V as alternate gene silencing products.

For independent verification of MMP-23 (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-41563A, sc-41563B and sc-41563C.

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

MMP-23 siRNA (h) is recommended for the inhibition of MMP-23 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 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 MMP-23 gene expression knockdown using RT-PCR Primer: MMP-23 (h)-PR: sc-41563-PR (20 μ l). 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.

PROTOCOLS

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