

# PITRM1 siRNA (h): sc-76151

## BACKGROUND

PITRM1 (pitrilysin metalloproteinase 1), also known as MP1, PreP, hMP1, KIAA1104, MGC138192 or MGC141929, is a 1,037 amino acid protein belonging to the peptidase M16 family and the PreP subfamily. Encoded by a gene that maps to human chromosome 10p15.2, PITRM1 is widely expressed, with higher levels in muscle and heart compared to brain, pancreas, liver, lung and placenta. PITRM1 is an ATP-independent protease that degrades mitochondrial transit peptides and other unstructured peptides after cleavage. PITRM1 also degrades Amyloid A4 proteins in mitochondrion, suggesting a link with Alzheimer disease. PITRM1 exists as two alternatively spliced isoforms and is specific for peptides in the range of 10 to 65 residues. PITRM1 shows a preference for cleavage after small polar residues and before basic residues, but without positional preference. PITRM1 binds one zinc ion per subunit and is inhibited by nickel and zinc excess, while slightly activated by manganese. PITRM1 may play a role in embryonic development and may potentially contribute to mitochondrial dysfunctions.

## REFERENCES

1. Mzhavia, N., et al. 1999. Cloning, expression, and characterization of human metalloproteinase 1: a novel member of the pitrilysin family of metalloendoproteases. *DNA Cell Biol.* 18: 369-380.
2. Suemizu, H., et al. 2003. Expression profiling of placentomegaly associated with nuclear transplantation of mouse ES cells. *Dev. Biol.* 253: 36-53.
3. Ehrlich, T.H., et al. 2005. Fine-mapping gene-by-diet interactions on chromosome 13 in a LG/J x SM/J murine model of obesity. *Diabetes* 54: 1863-1872.
4. Chen, H.W., et al. 2005. Transcriptome analysis in blastocyst hatching by cDNA microarray. *Hum. Reprod.* 20: 2492-2501.
5. Falkevall, A., et al. 2006. Degradation of the amyloid  $\beta$ -protein by the novel mitochondrial peptidase, PreP. *J. Biol. Chem.* 281: 29096-29104.
6. Chow, K.M., et al. 2009. Mammalian pitrilysin: substrate specificity and mitochondrial targeting. *Biochemistry* 48: 2868-2877.

## CHROMOSOMAL LOCATION

Genetic locus: PITRM1 (human) mapping to 10p15.2.

## PRODUCT

PITRM1 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PITRM1 shRNA Plasmid (h): sc-76151-SH and PITRM1 shRNA (h) Lentiviral Particles: sc-76151-V as alternate gene silencing products.

For independent verification of PITRM1 (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-76151A, sc-76151B and sc-76151C.

## RESEARCH USE

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

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

## APPLICATIONS

PITRM1 siRNA (h) is recommended for the inhibition of PITRM1 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  $\mu$ M in 66  $\mu$ 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 PITRM1 gene expression knockdown using RT-PCR Primer: PITRM1 (h)-PR: sc-76151-PR (20  $\mu$ 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](http://www.scbt.com) for detailed protocols and support products.