

# TMPRSS4 siRNA (m): sc-63138

## BACKGROUND

Extracellular proteases mediate the digestion of neighboring extracellular matrix components in initial tumor growth, allow desquamation of tumor cells into the surrounding environment, provide the basis for invasion of basement membranes in targeted metastatic organs and are required for release and activation of many growth and angiogenic factors. TMPRSS4 (transmembrane protease, serine 4), also known as MT-SP2 (membrane-type serine protease 2) and initially referred to as TMPRSS3, is a single-pass type II membrane protein with one SRCR domain, one LDL-receptor class A domain and one peptidase S1 domain. Localizing to the cell surface, TMPRSS4 is a member of the peptidase S1 family and is weakly expressed in normal tissues but is highly expressed in gastric, pancreatic, ampullary and colorectal cancer. TMPRSS4 plays a role in metastasis formation and tumor invasion.

## REFERENCES

1. Tanimoto, H., et al. 1997. Hepsin, a cell surface serine protease identified in hepatoma cells, is overexpressed in ovarian cancer. *Cancer Res.* 57: 2884-2887.
2. Magee, J.A., et al. 2001. Expression profiling reveals hepsin overexpression in prostate cancer. *Cancer Res.* 61: 5692-2696.
3. Kebebew, E., et al. 2005. ECM1 and TMPRSS4 are diagnostic markers of malignant thyroid neoplasms and improve the accuracy of fine needle aspiration biopsy. *Ann. Surg.* 242: 353-361
4. Jarzab, B., et al. 2005. Gene expression profile of papillary thyroid cancer: sources of variability and diagnostic implications. *Cancer Res.* 65: 1587-1597.
5. Yamada, H., et al. 2005. Effect of splice-site polymorphisms of the TMPRSS4, NPHP4 and ORCTL4 genes on their mRNA expression. *J. Genet.* 84: 131-136.
6. Kebebew, E., et al. 2006. Diagnostic and extent of disease multigene assay for malignant thyroid neoplasms. *Cancer* 106: 2592-2597.

## CHROMOSOMAL LOCATION

Genetic locus: *Tmprss4* (mouse) mapping to 9 A5.2.

## PRODUCT

TMPRSS4 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see TMPRSS4 shRNA Plasmid (m): sc-63138-SH and TMPRSS4 shRNA (m) Lentiviral Particles: sc-63138-V as alternate gene silencing products.

For independent verification of TMPRSS4 (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-63138A, sc-63138B and sc-63138C.

## PROTOCOLS

See our web site at [www.scbt.com](http://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  $\mu$ 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

TMPRSS4 siRNA (m) is recommended for the inhibition of TMPRSS4 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  $\mu$ M in 60  $\mu$ 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.

## GENE EXPRESSION MONITORING

TMPRSS4 (A-3): sc-376415 is recommended as a control antibody for monitoring of TMPRSS4 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor TMPRSS4 gene expression knockdown using RT-PCR Primer: TMPRSS4 (m)-PR: sc-63138-PR (20  $\mu$ 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.