SANTA CRUZ BIOTECHNOLOGY, INC.

Mts1 siRNA (m): sc-149694

BACKGROUND

The Mts1 gene encodes a small acidic Ca^{2+}-binding protein, Mts1 (also designated S100A4, calvasculin or metastasin). Mts1 belongs to the S100 family of small Ca^{2+}-binding proteins and is expressed in a cell-specific manner. Mts1 protein is involved in tumor progression and metastasis, and also has a significant stimulatory effect on angiogenesis. The level of Mts1 protein in serum increases with aging, suggesting that Mts1 may play a role in the induction of tumor progression via stimulation of angiogenesis. In addition, Mts1 cooperates with p53 in apoptosis induction by binding to the C-terminal regulatory domain of p53 to inhibit the DNA binding activity of p53. The ability of Mts1 to enhance p53-dependent apoptosis may accelerate the loss of p53 function in tumors. Thus, Mts1 can contribute to the development of a more aggressive phenotype during tumor progression.

REFERENCES

1. Watanabe, Y., et al. 1993. Calvasculin, as a factor affecting the microfilament assemblies in rat fibroblasts transfected by Src gene. FEBS Lett. 324: 51-55.
2. Schafer, B.W., et al. 1996. The S100 family of EF-hand calcium-binding proteins: functions and pathology. Trends Biochem. Sci. 21: 134-140.
3. Ambartsumian, N., et al. 2001. The metastasis-associated Mts1 (S100A4) protein could act as an angiogenic factor. Oncogene 20: 4685-4695.
4. Cohn, M.A., et al. 2001. Characterization of Sp1, AP-1, CBP and KRC binding sites and minisatellite DNA as functional elements of the metastasis-associated Mts1/S100A4 gene intronic enhancer. Nucleic Acids Res. 29: 3335-3346.

CHROMOSOMAL LOCATION

Genetic locus: S100a4 (mouse) mapping to 3 F1.

PRODUCT

Mts1 siRNA (m) is a pool of 2 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 Mts1 shRNA Plasmid (m): sc-149694-SH and Mts1 shRNA (m) Lentiviral Particles: sc-149694-V as alternate gene silencing products.

For independent verification of Mts1 (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-149694A and sc-149694B.

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

Mts1 siRNA (m) is recommended for the inhibition of Mts1 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.

GENE EXPRESSION MONITORING

Mts1 (X9-7): sc-100784 is recommended as a control antibody for monitoring of Mts1 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 Mts1 gene expression knockdown using RT-PCR Primer: Mts1 (m)-PR: sc-149694-PR (20 µl, 430 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Wang, X.G., et al. 2014. Blocking TGF-β inhibits breast cancer cell invasiveness via ERK/S100A4 signal. Eur. Rev. Med. Pharmacol. Sci. 18: 3844-3853.
2. Zhang, K., et al. 2016. Knockdown of S100A4 blocks growth and metastasis of anaplastic thyroid cancer cells *in vitro* and *in vivo*. Cancer Biomark. 17: 281-291.

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.