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SANTA CRUZ BIOTECHNOLOGY, INC.

RNMTL1 siRNA (m): sc-153056

BACKGROUND

The RNA methyltransferase family of proteins catalyze the transfer of a methyl group from a donor to an RNA acceptor. Via their ability to modify RNA, RNA methyltransferase proteins play an important role in cell growth and signaling pathways and may be involved in tumor development and progression. RNMTL1 (RNA methyltransferase like 1), also known as HC90, is a 420 amino acid protein belonging to the RNA methyltransferase trmH family. Expressed in normal liver and hepatocarcinoma, RNMTL1 is encoded by a gene located on human chromosome 17, which comprises over 2.5% of the human genome and encodes over 1,200 genes. Two key tumor suppressor genes are associated with chromosome 17, namely, p53 and BRCA1. Tumor suppressor p53 is necessary for maintenance of cellular genetic integrity by moderating cell fate through DNA repair versus cell death. Malfunction or loss of p53 expression is associated with malignant cell growth and Li-Fraumeni syndrome. Like p53, BRCA1 is directly involved in DNA repair, though specifically it is recognized as a genetic determinant of early onset breast cancer and predisposition to cancers of the ovary, colon, prostate gland and fallopian tubes.

REFERENCES

1. Sindhuphak, T., et al. 1985. Site specificities of three transfer RNA methyltransferases from yeast. Biochim. Biophys. Acta 824: 66-73.
2. Xu, J., et al. 2002. The ATF/CREB site is the key element for transcription of the human RNA methyltransferase like 1(RNMTL1) gene, a newly discovered 17p13.3 gene. Cell Res. 12: 177-197.
3. Wang, R., et al. 2002. Expression of novel cloned genes HC56, HC71 and HC90 mapped on human chromosome 17p13.3 in leukemic cells. Zhongguo Shi Yan Xue Ye Xue Za Zhi 10: 419-422.
4. Nield, B.S., et al. 2004. New enzymes from environmental cassette arrays: functional attributes of a phosphotransferase and an RNA-methyltransferase. Protein Sci. 13: 1651-1659.
5. Watanabe, K., et al. 2005. Roles of conserved amino acid sequence motifs in the SpoU (TrmH) RNA methyltransferase family. J. Biol. Chem. 280: 10368-10377.

CHROMOSOMAL LOCATION

Genetic locus: Rnmtl1 (mouse) mapping to 11 B5.

PRODUCT

RNMTL1 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 RNMTL1 shRNA Plasmid (m): sc-153056-SH and RNMTL1 shRNA (m) Lentiviral Particles: sc-153056-V as alternate gene silencing products.

For independent verification of RNMTL1 (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-153056A, sc-153056B and sc-153056C.

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

RNMTL1 siRNA (m) is recommended for the inhibition of RNMTL1 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

RNMTL1 (F-3): sc-374210 is recommended as a control antibody for monitoring of RNMTL1 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 RNMTL1 gene expression knockdown using RT-PCR Primer: RNMTL1 (m)-PR: sc-153056-PR (20 µl). 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.