SANTA CRUZ BIOTECHNOLOGY, INC.

PRMT6 siRNA (h): sc-106848

BACKGROUND

A class of proteins termed type 1 protein arginine N-methyltransferase (PRMT) enzymes contribute to posttranslational modification of RNA-binding proteins, but differ in substrate specificities, oligomerization properties and subcellular localization. PRMTs contain an S-adenosylmethione motif which functions to add one or two methyl groups to guanidino nitrogens of arginine (R) side chains. PRMT6, also known as HRMT1L6, is a nuclear protein belonging to the PRMT family and is predominantly expressed in testis and kidney. It is known to methylate Histones H3, H4 and H2A. PRMT6 is the major dimethyltransferase for Histone H3 and specifically methylates Histone H3 at R2. Methylation at Histone H3 R2 acts to inhibit Histone H3 K4 trimethylation and ultimately leads to the transcriptional repression of genes that are activated by Histone H3 K4 trimethylation. In addition, PRMT6 methylates HIV TAT, possibly functioning as a form of cellular innate immunity to restrict levels of HIV replication.

REFERENCES

1. Boulanger, M.C., et al. 2005. Methylation of Tat by PRMT6 regulates human immunodeficiency virus type 1 gene expression. J. Virol. 79: 124-131.
2. Miranda, T.B., et al. 2005. Protein Arginine methyltransferase 6 specifically methylates the nonhistone chromatin protein HMGA1a. Biochem. Biophys. Res. Commun. 336: 831-835.
3. El-Andaloussi, N., et al. 2006. Arginine methylation regulates DNA polymerase β. Mol. Cell 22: 51-62.
4. Sgarra, R., et al. 2006. The AT-hook of the chromatin architectural transcription factor high mobility group A1a is Arginine-methylated by protein Arginine methyltransferase 6. J. Biol. Chem. 281: 3764-3772.
5. Hyllus, D., et al. 2007. PRMT6-mediated methylation of R2 in Histone H3 antagonizes H3 K4 trimethylation. Genes Dev. 21: 3369-3380.
6. Guccione, E., et al. 2007. Methylation of Histone H3 R2 by PRMT6 and H3 K4 by an MLL complex are mutually exclusive. Nature 449: 933-937.

CHROMOSOMAL LOCATION

Genetic locus: PRMT6 (human) mapping to 1p13.3.

PRODUCT

PRMT6 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PRMT6 shRNA Plasmid (h): sc-106848-SH and PRMT6 shRNA (h) Lentiviral Particles: sc-106848-V as alternate gene silencing products.

For independent verification of PRMT6 (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-106848A, sc-106848B and sc-106848C.

PROTOCOLS

See our web site at 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 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

PRMT6 siRNA (h) is recommended for the inhibition of PRMT6 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 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

PRMT6 (D-5): sc-271744 is recommended as a control antibody for monitoring of PRMT6 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 PRMT6 gene expression knockdown using RT-PCR Primer: PRMT6 (h)-PR: sc-106848-PR (20 µl, 405 bp). 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.