SANTA CRUZ BIOTECHNOLOGY, INC.

PRMT3 siRNA (h): sc-41071

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. PRMT1, the predominant form in mammalian cells, is located in the nucleus, while PRMT3 is present in the cytoplasm. At the carboxy-terminus, interleukin enhancer-binding factor 3 (ILF3) binds PRMT1, thereby regulating PRMT1 activitiy. Alternative mRNA splicing of the PRMT gene results in three isoforms of PRMT1 that differ in their amino-terminus regions. All three splice variants of PRMT1 are enzymatically active. PRMT3 recognizes and binds to RNA-associated substrates with a zinc-finger domain in its amino-terminus. The zinc-liganded form of this domain is required for the enzyme to recognize RNA-associated substrates.

REFERENCES

1. Tang, J., et al. 1998. PRMT3, a type 1 protein arginine N-methyltransferase that differs from PRMT1 in its oligomerization, subcellular localization, substrate specificity, and regulation. J. Biol. Chem. 273: 16935-16945.
2. Tang, J., et al. 2000. PRMT1 is the predominant type 1 protein arginine methyltransferase in mammalian cells. J. Biol. Chem. 275: 7723-7730.
3. Tang, J., et al. 2000. Protein-arginine methyltransferase I, the predominant protein-arginine methyltransferase in cells, interacts with and is regulated by interleukin enhancer-binding factor 3. J. Biol. Chem. 275: 19866-19876.
4. Frankel, A., et al. 2000. PRMT3 is a distinct member of the protein arginine N-methyltransferase family. Conferral of substrate specificity by a zinc-finger domain. J. Biol. Chem. 275: 32974-32982.
5. Scorilas, A., et al. 2000. Genomic organization, physical mapping, and expression analysis of the human protein arginine methyltransferase 1 gene. Biochem. Biophys. Res. Commun. 278: 349-359.
6. Zhang, X., et al. 2003. Structure of the predominant protein arginine methyltransferase PRMT1 and analysis of its binding to substrate peptides. Structure 11: 509-520.
7. An, W., et al. 2004. Ordered cooperative functions of PRMT1, p300 and CARM1 in transcriptional activation by p53. Cell 117: 735-748.

CHROMOSOMAL LOCATION

Genetic locus: PRMT3 (human) mapping to 11p15.1.

PRODUCT

PRMT3 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 PRMT3 shRNA Plasmid (h): sc-41071-SH and PRMT3 shRNA (h) Lentiviral Particles: sc-41071-V as alternate gene silencing products.

For independent verification of PRMT3 (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-41071A, sc-41071B and sc-41071C.

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

PRMT3 siRNA (h) is recommended for the inhibition of PRMT3 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PRMT3 gene expression knockdown using RT-PCR Primer: PRMT3 (h)-PR: sc-41071-PR (20 µl, 491 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Lim, J.O., et al. 2019. Cisplatin-induced ototoxicity involves interaction of PRMT3 and cannabinoid system. Arch. Toxicol. 93: 2335-2346.

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.