SANTA CRUZ BIOTECHNOLOGY, INC.

PRMT5 siRNA (h): sc-41073

BACKGROUND

The formation of the spliceosome includes the assembly of Sm proteins in an ordered manner onto snRNAs. This process is mediated by the survival of a motor neuron (SMN) protein and is enhanced by modification of specific Arginine residues in the Sm proteins to symmetrical dimethylarginines (sDMAs). sDMA modification of Sm proteins is catalyzed by the methylosome, a complex comprised of the type II methyltransferase PRMT5, also designated JAK-binding protein 1), (JBP1), pICln, and two novel factors. PRMT5 binds the Sm proteins via their Arginine- and Glycine-rich (RG) domains, while pICln binds the Sm domains. PRMT5 is a distinct member of the protein-Arginine methyltransferase (PRMT) family, and predominantly localizes to the cytoplasm in a wide variety of tissues. PRMT5 also associates specifically with the transcription start site region of the cyclin E1 promoter, and, therefore, is involved in the control of transcription and proliferation. The gene encoding human PRMT5 maps to chromosome 14q11.2.

REFERENCES

1. Pollack, B.P., et al. 1999. The human homologue of the yeast proteins Skb1 and Hsl7p interacts with JAK kinases and contains protein methyltransferase activity. J. Biol. Chem. 274: 31531-31542.
2. Frankel, A. and Clarke, S. 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.

CHROMOSOMAL LOCATION

Genetic locus: PRMT5 (human) mapping to 14q11.2.

PRODUCT

PRMT5 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 PRMT5 shRNA Plasmid (h): sc-41073-SH and PRMT5 shRNA (h) Lentiviral Particles: sc-41073-V as alternate gene silencing products.

For independent verification of PRMT5 (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-41073A, sc-41073B and sc-41073C.

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

PRMT5 siRNA (h) is recommended for the inhibition of PRMT5 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

PRMT5 (A-11): sc-376937 is recommended as a control antibody for monitoring of PRMT5 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 PRMT5 gene expression knockdown using RT-PCR Primer: PRMT5 (h)-PR: sc-41073-PR (20 µl, 494 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Kanade, S.R. and Eckert, R.L. 2012. Protein arginine methyltransferase 5 (PRMT5) signaling suppresses protein kinase C δ- and p38δ-dependent signaling and keratinocyte differentiation. J. Biol. Chem. 287: 7313-7323.
2. Chen, D., et al. 2017. Role of protein arginine methyltransferase 5 in inflammation and migration of fibroblast-like synoviocytes in rheumatoid arthritis. J. Cell. Mol. Med. 21: 781-790.
3. Sharma, P., et al. 2019. Arginine citrullination at the C-terminal domain controls RNA polymerase II transcription. Mol. Cell 73: 84-96.
4. Chatterjee, B., et al. 2019. Curcumin ameliorates PRMT5-MEP50 Arginine methyltransferase expression by decreasing the Sp1 and NF-YA transcription factors in the A549 and MCF-7 cells. Mol. Cell. Biochem. 455: 73-90.
5. Chaturvedi, N.K., et al. 2019. Role of protein arginine methyltransferase 5 in group 3 (Myc-driven) medulloblastoma. BMC Cancer 19: 1056.

RESEARCH USE

For research use only, not for use in diagnostic procedures.