

CARM1 siRNA (h): sc-44875

BACKGROUND

CARM1 (coactivator-associated arginine methyltransferase 1), also known as protein arginine N-methyltransferase 4 (PRMT4), is a 585 amino acid nuclear and cytoplasmic protein belonging to the protein arginine N-methyltransferase family. As a protein arginine N-methyltransferase, CARM1 is capable of catalyzing the transfer of methyl groups from S-adenosylmethionine to the guanidino group nitrogen atoms of arginine residues in certain proteins involved in mRNA stability, DNA packaging and transcriptional regulation. The methyltransferase activity of CARM1 has been found to be negatively regulated through phosphorylation at a conserved serine residue. CARM1 acts as a positive regulator for multiple transcription factors and functions as a secondary co-activator through its association with p160 co-activators. CARM1 exists as two alternatively spliced isoforms, and is encoded by a gene that maps to human chromosome 19p13.2.

REFERENCES

1. Chen, D., et al. 1999. Regulation of transcription by a protein methyltransferase. *Science* 284: 2174-2177.
2. Frankel, A., et al. 2002. The novel human protein arginine N-methyltransferase PRMT6 is a nuclear enzyme displaying unique substrate specificity. *J. Biol. Chem.* 277: 3537-3543.

CHROMOSOMAL LOCATION

Genetic locus: CARM1 (human) mapping to 19p13.2.

PRODUCT

CARM1 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see CARM1 shRNA Plasmid (h): sc-44875-SH and CARM1 shRNA (h) Lentiviral Particles: sc-44875-V as alternate gene silencing products.

For independent verification of CARM1 (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-44875A, sc-44875B and sc-44875C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

CARM1 siRNA (h) is recommended for the inhibition of CARM1 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 μ M in 66 μ l. 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

CARM1 (D-6): sc-390656 is recommended as a control antibody for monitoring of CARM1 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor CARM1 gene expression knockdown using RT-PCR Primer: CARM1 (h)-PR: sc-44875-PR (20 μ l, 419 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Jeong, S.J., et al. 2006. Coactivator-associated arginine methyltransferase 1 enhances transcriptional activity of the human T-cell lymphotropic virus type 1 long terminal repeat through direct interaction with Tax. *J. Virol.* 80: 10036-10044.
2. Huang, Y., et al. 2013. Phospho- Δ Np63 α /microRNA feedback regulation in squamous carcinoma cells upon cisplatin exposure. *Cell Cycle* 12: 684-697.
3. Kim, D.I., et al. 2014. High-glucose-induced CARM1 expression regulates apoptosis of human retinal pigment epithelial cells via histone 3 arginine 17 dimethylation: role in diabetic retinopathy. *Arch. Biochem. Biophys.* 560: 36-43.
4. Kim, D.I., et al. 2015. PRMT1 and PRMT4 regulate oxidative stress-induced retinal pigment epithelial cell damage in SIRT1-dependent and SIRT1-independent manners. *Oxid. Med. Cell. Longev.* 2015: 617919.
5. Yeom, C.G., et al. 2015. Insulin-induced CARM1 upregulation facilitates hepatocyte proliferation. *Biochem. Biophys. Res. Commun.* 461: 568-574.
6. Sharma, P., et al. 2018. Arginine citrullination at the C-terminal domain controls RNA polymerase II transcription. *Mol. Cell* 73: 84-96.
7. 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.