SANTA CRUZ BIOTECHNOLOGY, INC.

JMJD5 siRNA (h): sc-75359

BACKGROUND

JMJD5 (jumonji domain containing 5) is a nuclear protein that is believed to function as a histone lysine demethylase. Belonging to the Jumonji C-domain-containing histone lysine demethylase (JHDM) family, JMJD5 contains one JMJC (jumonji C) domain. The *C. elegans* homolog of JMJD5 has been identified as a protein that protects the genome against insertions and deletions. This suggests a potential role for mammalian JMJD5 as a tumor suppressor. Further supporting the role of JMJD5 as a tumor suppressor, the knockdown of JMJD5 expression in mouse fibroblasts can lead to an increased mutation rate and an increased tolerance to MNNG (a DNA methylating agent). This implies that JMJD5 may specifically participate in DNA mismatch repair.

REFERENCES

1. Toyoda, M., et al. 2000. Jumonji is a nuclear protein that participates in the negative regulation of cell growth. Biochem. Biophys. Res. Commun. 274: 332-336.
2. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 611917. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Jung, J., et al. 2005. Roles of JUMONJI in mouse embryonic development. Dev. Dyn. 232: 21-32.

CHROMOSOMAL LOCATION

Genetic locus: KDM8 (human) mapping to 16p12.1.

PRODUCT

JMJD5 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 JMJD5 shRNA Plasmid (h): sc-75359-SH and JMJD5 shRNA (h) Lentiviral Particles: sc-75359-V as alternate gene silencing products.

For independent verification of JMJD5 (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-75359A, sc-75359B and sc-75359C.

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

JMJD5 siRNA (h) is recommended for the inhibition of JMJD5 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

JMJD5 (D-5): sc-377078 is recommended as a control antibody for monitoring of JMJD5 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 JMJD5 gene expression knockdown using RT-PCR Primer: JMJD5 (h)-PR: sc-75359-PR (20 µl, 529 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. He, Z., et al. 2016. JMJD5 (Jumonji domain-containing 5) associates with spindle microtubules and is required for proper mitosis. J. Biol. Chem. 291: 4684-4697.
2. Wu, J., et al. 2016. Depletion of JMJD5 sensitizes tumor cells to microtubule-destabilizing agents by altering microtubule stability. Cell Cycle 15: 2980-2991.
3. Wu, J., et al. 2017. RCCD1 depletion attenuates TGF-β-induced EMT and cell migration by stabilizing cytoskeletal microtubules in NSCLC cells. Cancer Lett. 400: 18-29.
4. Yao, Y., et al. 2019. Down-regulation of JMJD5 suppresses metastasis and induces apoptosis in oral squamous cell carcinoma by regulating p53/NFκB pathway. Biomed. Pharmacother. 109: 1994-2004.

RESEARCH USE

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