SANTA CRUZ BIOTECHNOLOGY, INC.

JMJD2C siRNA (m): sc-146324

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The Power to Question

BACKGROUND

JMJD2C (Jumonji domain containing 2C), also known as GASC1, KDM4C or JHDM3C, is a nuclear protein that belongs to the Jumonji domain 2 (JMJD2) family of histone demethylases. Functioning as a trimethylation-specific demethylase, JMJD2C demethylates specific lysine residues of Histone H3, thereby converting the trimethylated Histone H3 to its dimethylated form and playing a central role in the histone code. Through its ability to modify histones, JMJD2C increases the rate of cell proliferation and promotes the expression of a variety of proteins. JMJD2C binds iron as a cofactor and contains two Tudor domains through which it interacts with methylated histones. Overexpression of JMJD2C is associated with esophageal squamous cell carcinoma, suggesting a possible role for JMJD2C in carcinogenesis. Two isoforms of JMJD2C exist due to alternative splicing events.

REFERENCES

1. Yang, Z.Q., et al. 2000. Identification of a novel gene, GASC1, within an amplicon at 9p23-24 frequently detected in esophageal cancer cell lines. Cancer Res. 60: 4735-4739.
2. Katoh, M. and Katoh, M. 2004. Identification and characterization of JMJD2 family genes *in silico*. Int. J. Oncol. 24: 1623-1628.
3. Cloos, P.A., et al. 2006. The putative oncogene GASC1 demethylates tri- and dimethylated Lysine 9 on Histone H3. Nature 442: 307-311.
4. Whetstine, J.R., et al. 2006. Reversal of histone lysine trimethylation by the JMJD2 family of histone demethylases. Cell 125: 467-481.
5. Loh, Y.H., et al. 2007. JMJD1A and JMJD2C Histone H3 Lys 9 demethylases regulate self-renewal in embryonic stem cells. Genes Dev. 21: 2545-2557.
6. Helias, C., et al. 2008. Polycythemia vera transforming to acute myeloid leukemia and complex abnormalities including 9p homogeneously staining region with amplification of MLLT3, JMJD2C, JAK2, and SMARCA2. Cancer Genet. Cytogenet. 180: 51-55.

CHROMOSOMAL LOCATION

Genetic locus: Kdm4c (mouse) mapping to 4 C3.

PRODUCT

JMJD2C siRNA (m) 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 JMJD2C shRNA Plasmid (m): sc-146324-SH and JMJD2C shRNA (m) Lentiviral Particles: sc-146324-V as alternate gene silencing products.

For independent verification of JMJD2C (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-146324A, sc-146324B and sc-146324C.

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

JMJD2C siRNA (m) is recommended for the inhibition of JMJD2C expression in mouse 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

JMJD2C (D-4): sc-515767 is recommended as a control antibody for monitoring of JMJD2C 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 JMJD2C gene expression knockdown using RT-PCR Primer: JMJD2C (m)-PR: sc-146324-PR (20 µl). 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.