SANTA CRUZ BIOTECHNOLOGY, INC.

JMJD1A siRNA (h): sc-94627

BACKGROUND

JMJD1A (Jumonji domain containing 1A), also known as TSGA (testis-specific protein A), JMJD1, KDM3A, JHDM2A (JMJC domain-containing histone demethylation protein 2A) or JHMD2A, is a member of the JHDM2 histone demethylase family of proteins that is predominantly expressed in testis. Containing one JMJC domain and a C-terminal C_2HC_4 zinc finger, JMJD1A functions as a mono- and dimethylation-specific demethylase, binding iron and α-ketoglutarate as cofactors and demethylating Lysine 9 of Histone H3. This suggests that JMJD1A plays a central role in the histone code and participates in nuclear hormone receptor-based transcriptional regulation. In addition, JMJD1A plays an important role in the regulation of cell growth during development and in chromatin regulation. JMJD1A directly regulates the expression of TNP1 and Protamine 1 (proteins required for the proper packaging and condensation of sperm chromatin) and, therefore, plays an essential role in spermatogenesis.

REFERENCES

1. Nagase, T., et al. 1998. Prediction of the coding sequences of unidentified human genes. XI. The complete sequences of 100 new cDNA clones from brain which code for large proteins *in vitro*. DNA Res. 5: 277-286.
2. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 611512. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Knebel, J., et al. 2006. Repression of transcription by TSGA/Jmjd1a, a novel interaction partner of the ETS protein ER71. J. Cell. Biochem. 99: 319-329.
4. Yamane, K., et al. 2006. JHDM2A, a JmjC-containing H3K9 demethylase, facilitates transcription activation by androgen receptor. Cell 125: 483-495.
5. Ko, S.Y., et al. 2006. Identification of Jmjd1a as a Stat3 downstream gene in mES cells. Cell Struct. Funct. 31: 53-62.

CHROMOSOMAL LOCATION

Genetic locus: JMJD1A (human) mapping to 2p11.2.

PRODUCT

JMJD1A 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 JMJD1A shRNA Plasmid (h): sc-94627-SH and JMJD1A shRNA (h) Lentiviral Particles: sc-94627-V as alternate gene silencing products.

For independent verification of JMJD1A (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-94627A, sc-94627B and sc-94627C.

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

JMJD1A siRNA (h) is recommended for the inhibition of JMJD1A 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

JMJD1A (H-1): sc-398946 is recommended as a control antibody for monitoring of JMJD1A 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 JMJD1A gene expression knockdown using RT-PCR Primer: JMJD1A (h)-PR: sc-94627-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.