SANTA CRUZ BIOTECHNOLOGY, INC.

JMJD2A (H-8): sc-373850

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The Power to Question

BACKGROUND

JMJD2A (jumonji domain containing 2A), also designated jumonji C domain-containing histone demethylation protein 3A, is a 1,064 amino acid protein encoded by the human gene JMJD2A. JMJD2A belongs to the JHDM3 histone demethylase family and contains one JmjC domain, one JmjN domain, two PHD-type zinc fingers and two tudor domains. JMJD2A is histone demethylase that specifically demethylates Lys 9 and Lys 36 residues of Histone H3, thereby playing a central role in histone code. It does not demethylate Histone H3 Lys 4, H3 Lys 27 nor H4 Lys 20, however, it will demethylate tri-methylated H3 Lys 9 and H3 Lys 36 residue, while it has no activity on mono- and dimethylated residues. JMJD2A demethylation of lysine residues will generate formaldehyde and succinate. It also participates in transcriptional repression of ASCL2 and E2F-responsive promoters via the recruitment of histone deacetylases and NCOR1, respectively. JMJD2A is a ubiquitously expressed nuclear protein.

REFERENCES

1. Katoh, M., et al. 2004. Identification and characterization of JMJD2 family genes in silico. Int. J. Oncol. 24: 1623-1628.
2. Gray, S.G., et al. 2005. Functional characterization of JMJD2A, a histone deacetylase- and retinoblastoma-binding protein. J. Biol. Chem. 280: 28507-28518.
3. Zhang, D., et al. 2005. JMJD2A is a novel N-CoR-interacting protein and is involved in repression of the human transcription factor achaete scute-like homologue 2 (ASCL2/Hash2). Mol. Cell. Biol. 25: 6404-6414.
4. Huang, Y., et al. 2006. Recognition of Histone H3 lysine 4 methylation by the double tudor domain of JMJD2A. Science 312: 748-751.
5. Whetstine, J.R., et al. 2006. Reversal of histone lysine trimethylation by the JMJD2 family of histone demethylases. Cell 125: 467-481.
6. Lee, J., et al. 2007. Distinct binding modes specify the recognition of methylated histones H3K4 and H4K20 by JMJD2A-tudor. Nat. Struct. Mol. Biol. 15: 109-111.
7. Ng, S.S., et al. 2007. Crystal structures of histone demethylase JMJD2A reveal basis for substrate specificity. Nature 448: 87-91.

CHROMOSOMAL LOCATION

Genetic locus: KDM4A (human) mapping to 1p34.1; Kdm4a (mouse) mapping to 4 D2.1.

SOURCE

JMJD2A (H-8) is a mouse monoclonal antibody raised against amino acids 347-633 mapping within an internal region of JMJD2A of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

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

APPLICATIONS

JMJD2A (H-8) is recommended for detection of JMJD2A of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for JMJD2A siRNA (h): sc-62515, JMJD2A siRNA (m): sc-62516, JMJD2A shRNA Plasmid (h): sc-62515-SH, JMJD2A shRNA Plasmid (m): sc-62516-SH, JMJD2A shRNA (h) Lentiviral Particles: sc-62515-V and JMJD2A shRNA (m) Lentiviral Particles: sc-62516-V.

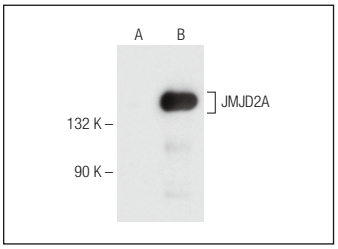
Molecular Weight of JMJD2A: 155 kDa.

Positive Controls: SK-N-MC cell lysate: sc-2237, Jurkat whole cell lysate: sc-2204 or NIH/3T3 nuclear extract: sc-2138.

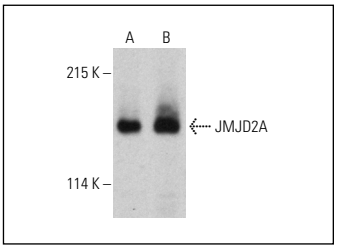
RECOMMENDED SUPPORT REAGENTS

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

DATA



JMJD2A (H-8): sc-373850. Western blot analysis of JMJD2A expression in non-transfected (**A**) and human JMJD2A transfected (**B**) HEK293T whole cell lysates.



JMJD2A (H-8): sc-373850. Western blot analysis of JMJD2A expression in Jurkat (**A**) and SK-N-MC (**B**) whole cell lysates.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.