SANTA CRUZ BIOTECHNOLOGY, INC.

JMJD1A (C-6): sc-376608

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The Power to Question

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 C2HC4 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.

CHROMOSOMAL LOCATION

Genetic locus: KDM3A (human) mapping to 2p11.2; Kdm3a (mouse) mapping to 6 C1.

SOURCE

JMJD1A (C-6) is a mouse monoclonal antibody raised against amino acids 121-420 mapping near the N-terminus of JMJD1A 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. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-376608 X, 200 µg/0.1 ml.

STORAGE

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

APPLICATIONS

JMJD1A (C-6) is recommended for detection of JMJD1A 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 JMJD1A siRNA (h): sc-94627, JMJD1A siRNA (m): sc-146322, JMJD1A shRNA Plasmid (h): sc-94627-SH, JMJD1A shRNA Plasmid (m): sc-146322-SH, JMJD1A shRNA (h) Lentiviral Particles: sc-94627-V and JMJD1A shRNA (m) Lentiviral Particles: sc-146322-V.

JMJD1A (C-6) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

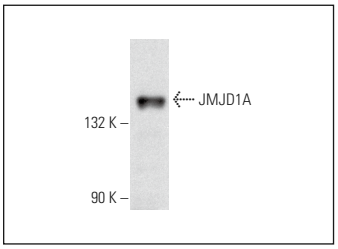
Molecular Weight of JMJD1A monomer/homodimer: 150/300 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206.

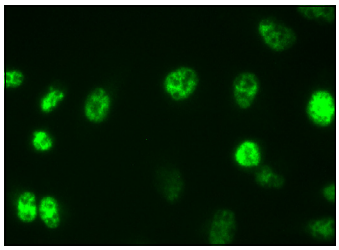
RECOMMENDED SUPPORT REAGENTS

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



JMJD1A (C-6): sc-376608. Western blot analysis of JMJD1A expression in MCF7 whole cell lysate.



JMJD1A (C-6): sc-376608. Immunofluorescence staining of formalin-fixed HeLa cells showing nuclear localization. Kindly provided by Yang Xiang, Ph.D., Division of Newborn Medicine, Boston Children's Hospital, Cell Biology Department, Harvard Medical School.

SELECT PRODUCT CITATIONS

1. Kaukonen, R., et al. 2016. Normal stroma suppresses cancer cell proliferation via mechanosensitive regulation of JMJD1A-mediated transcription. Nat. Commun. 7: 12237.
2. Xu, S., et al. 2020. p300-mediated acetylation of histone demethylase JMJD1A prevents its degradation by ubiquitin ligase STUB1 and enhances its activity in prostate cancer. Cancer Res. 80: 3074-3087.
3. Ahn, H.J., et al. 2020. KDM3A regulates Slug expression to promote the invasion of MCF7 breast cancer cells in hypoxia. Oncol. Lett. 20: 335.
4. Wu, J.C., et al. 2021. Downregulated microRNA-199a-3p enhances osteogenic differentiation of bone marrow mesenchymal stem cells by targeting Kdm3a in ovariectomized rats. Biochem. J. 478: 721-734.
5. Guo, X., et al. 2022. The histone demthylase KDM3A protects the myocardium from ischemia/reperfusion injury via promotion of ETS1 expression. Commun. Biol. 5: 270.

RESEARCH USE

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

PROTOCOLS

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