

# JMJD2A (3559D5a): sc-81302

## 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 a 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 trimethylated 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. and Katoh, M. 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. Whetstone, 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.

## SOURCE

JMJD2A (3559D5a) is a mouse monoclonal antibody raised against a recombinant protein corresponding to an internal region of JMJD2A of human origin.

## PRODUCT

Each vial contains 100 µg IgG<sub>2a</sub> in 1.0 ml of PBS with < 0.1% sodium azide and 1.0% stabilizer protein.

## RESEARCH USE

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

## APPLICATIONS

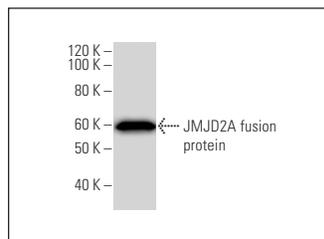
JMJD2A (3559D5a) is recommended for detection of JMJD2A of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

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

Molecular Weight of JMJD2A: 155 kDa.

Positive Controls: Jurkat nuclear extract: sc-2132 or SK-N-MC nuclear extract: sc-2154.

## DATA



JMJD2A (3559D5a): sc-81302. Western Blot analysis of human recombinant JMJD2A fusion protein.

## SELECT PRODUCT CITATIONS

1. Kylie, K., et al. 2016. Dynamic regulation of Histone H3K9 is linked to the switch between replication and transcription at the Dbf4 origin-promoter locus. *Cell Cycle* 15: 2321-2335.
2. Jiang, K., et al. 2018. miR-150 promotes the proliferation and migration of non-small cell lung cancer cells by regulating the SIRT2/JMJD2A signaling pathway. *Oncol. Rep.* 40: 943-951.

## 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](http://www.scbt.com) for detailed protocols and support products.