Revision 1

Store at -20C

#2898

# JMJD2B Antibody

Cell Signaling TECHNOLOGY®

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**For Research Use Only. Not for Use in Diagnostic Procedures.**

| Applications: | Reactivity: | Sensitivity: | MW (kDa): | Source/Isotype: | UniProt ID: | Entrez-Gene Id: |
|---|---|---|---|---|---|---|
| W, IP | H | Endogenous | 150 | Rabbit | #O94953 | 23030 |

## Product Usage Information

| Application | Dilution |
|---|---|
| Western Blotting | 1:1000 |
| Immunoprecipitation | 1:25 |

## Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at –20°C. Do not aliquot the antibody.

## Specificity/Sensitivity

JMJD2B Antibody detects endogenous levels of total JMJD2B protein. The antibody does not cross-react with other Jumonji C proteins, including JMJD2A, JMJD2C and JMJD2D.

## Species predicted to react based on 100% sequence homology

Monkey

## Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to the human JMJD2B protein. Antibodies are purified by protein A and peptide affinity chromatography.

## Background

The methylation state of lysine residues in histone proteins is a major determinant of the formation of active and inactive regions of the genome and is crucial for proper programming of the genome during development (1,2). Jumonji C (JmjC) domain-containing proteins represent the largest class of potential histone demethylase proteins (3). The JmjC domain can catalyze the demethylation of mono-, di-, and tri-methyl lysine residues via an oxidative reaction that requires iron and α-ketoglutarate (3). Based on homology, both humans and mice contain at least 30 such proteins, which can be divided into 7 separate families (3). The jumonji domain-containing protein 2 (JMJD2) family, also known as the JmjC domain-containing histone demethylation protein 3 (JHDM3) family, contains four members: JMJD2A/JHDM3A, JMJD2B/JHDM3B, JMJD2C/JHDM3C, and JMJD2D/JHDM3D. In addition to the JmjC domain, these proteins also contain JmjN, PHD, and tudor domains, the latter of which has been shown to bind to methylated histone H3 at Lys4 and Lys9, and methylated histone H4 at Lys20 (4,5). JMJD2 proteins have been shown to demethylate di- and tri-methyl histone H3 at Lys9 and Lys36 and function as both activators and repressors of transcription (6-11). JMJD2A, JMJD2C, and JMJD2D function as coactivators of the androgen receptor in prostate tumor cells (7). In contrast, JMJD2A also associates with Rb and NCoR corepressor complexes and is necessary for transcriptional repression of target genes (8,9). JMJD2B antagonizes histone H3 Lys9 tri-methylation at pericentric heterochromatin (10). JMJD2C, also known as GASC1, is amplified in squamous cell carcinomas and metastatic lung carcinoma and inhibition of JMJD2C expression decreases cell proliferation (11,12). JMJD2C has also been identified as a downstream target of Oct-4 and is critical for the regulation of self-renewal in embryonic stem cells (13).

## Background References

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8. Gray, S.G. et al. (2005) *J Biol Chem* 280, 28507-18.
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12. Italiano, A. et al. (2006) *Cancer Genet Cytogenet* 167, 122-30.
13. Loh, Y.H. et al. (2007) *Genes Dev* 21, 2545-57.

## Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

## Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

## Applications Key

**W:** Western Blotting **IP:** Immunoprecipitation

## Cross-Reactivity Key

**H:** Human

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