

#3393 Store at -20°C

# JMJD2A (C70G6) Rabbit mAb



100 µl  
 (10 western blots)

**Orders** ■ 877-616-CELL (2355)  
 orders@cellsignal.com  
**Support** ■ 877-678-TECH (8324)  
 info@cellsignal.com  
**Web** ■ www.cellsignal.com

rev. 01/21/10

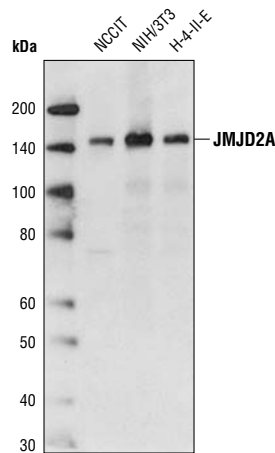
This product is intended for research purposes only. This product is not intended to be used for therapeutic or diagnostic purposes in humans or animals.

Applications	Species Cross-Reactivity*	Molecular Wt.	Source
W, IP, IF-IC Endogenous	H, M, R, (Mk)	150 kDa	Rabbit IgG**

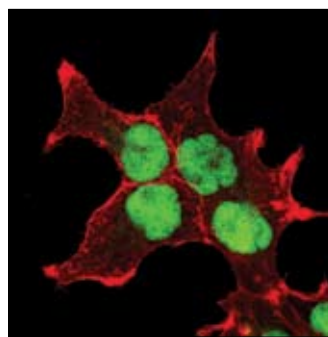
**Background:** The methylation state of lysine residues in histone proteins is a major determinant of the formation of active and inactive regions of the genome and is crucial for proper programming of the genome during development (1,2). Jumonji C (JmjC) domain-containing proteins represent the largest 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  $\alpha$ -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 JMJD2 (Jumonji domain-containing protein 2) family, also known as JHDM3 (JmjC domain-containing histone demethylation protein 3) 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 N-CoR 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).

**Specificity/Sensitivity:** JMJD2A (C70G6) Rabbit mAb detects endogenous levels of total JMJD2A protein. This antibody does not cross-react with other Jumonji C proteins, including JMJD2B, JMJD2C and JMJD2D.

**Source/Purification:** Monoclonal antibody is produced by immunizing animals with a synthetic peptide (KLH-coupled) corresponding to the human JMJD2A protein.



Western blot analysis of extracts from NCCIT, NIH/3T3 and H4-II-E cells using JMJD2A (C70G6) Rabbit mAb.



Confocal immunofluorescent analysis of NCCIT cells using JMJD2A (C70G6) Rabbit mAb (green). Actin filaments have been labeled with DY-554 phalloidin (red).

**Entrez-Gene ID** #9682  
**Swiss-Prot Acc.** #075164

**Storage:** Supplied in 10 mM HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at -20°C. Do not aliquot the antibody.

\*Species cross-reactivity is determined by Western blot.

\*\*Anti-rabbit secondary antibodies must be used to detect this antibody.

**Recommended Antibody Dilutions:**

Western Blotting	1:1000
Immunoprecipitation	1:50
Immunofluorescence (IF-IC)	1:100

For application specific protocols please see the web page for this product at [www.cellsignal.com](http://www.cellsignal.com).

Please visit [www.cellsignal.com](http://www.cellsignal.com) for a complete listing of recommended companion products.

**Background References:**

- (1) Kubicek, S. et al. (2006) *Ernst Schering Res Found Workshop* , 1-27.
- (2) Lin, W. and Dent, S.Y. (2006) *Curr Opin Genet Dev* 16, 137-42.
- (3) Klose, R.J. et al. (2006) *Nat Rev Genet* 7, 715-27.
- (4) Chen, Z. et al. (2007) *Proc Natl Acad Sci USA* 104, 10818-23.
- (5) Lee, J. et al. (2008) *Nat Struct Mol Biol* 15, 109-11.
- (6) Whetstone, J.R. et al. (2006) *Cell* 125, 467-81.
- (7) Shin, S. and Janknecht, R. (2007) *Biochem Biophys Res Commun* 359, 742-6.
- (8) Gray, S.G. et al. (2005) *J Biol Chem* 280, 28507-18.
- (9) Zhang, D. et al. (2005) *Mol Cell Biol* 25, 6404-14.
- (10) Fodor, B.D. et al. (2006) *Genes Dev* 20, 1557-62.
- (11) Cloos, P.A. et al. (2006) *Nature* 442, 307-11.
- (12) Italiano, A. et al. (2006) *Cancer Genet Cytogenet* 167, 122-30.
- (13) Loh, Y.H. et al. (2007) *Genes Dev* 21, 2545-57.

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

**Applications Key:** W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide  
**Species Cross-Reactivity Key:** H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebrafish B—bovine  
 Dg—dog Pg—pig Sc—S. cerevisiae Ce—C. elegans Hr—Horse All—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.

© 2010 Cell Signaling Technology, Inc. Rabbit monoclonal antibody is produced under license (granting certain rights including those under U. S. Patent No. 5,675,063) from EpiTomics, Inc.