

#3457 Store at -20C

JMJD3 Antibody

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

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source:	UniProt ID:	Entrez-Gene Id:
WB	H M	Transfected Only	200	Rabbit	#O15054	23135

Product Usage Information**Application**

Western Blotting

Dilution

1:1000

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

JMJD3 Antibody detects transfected levels of JMJD3 protein.

Species predicted to react based on 100% sequence homology:

Monkey, Horse

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to the human JMJD3 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 three members of the UTX/UTY family include the ubiquitously transcribed X chromosome tetratricopeptide repeat protein (UTX), the ubiquitously transcribed Y chromosome tetratricopeptide repeat protein (UTY), and JmjC domain-containing protein 3 (JMJD3) (3). This family of proteins has been shown to demethylate both di- and tri-methyl histone H3 Lys 27 (4-8). The UTX gene escapes X inactivation in females and is ubiquitously expressed (9). UTX functions to regulate *HOX* gene expression during development (4-6). JMJD3 functions to regulate gene expression in macrophages responding to various inflammatory stimuli and has been shown to be upregulated in prostate cancer (7,8). Both UTX and JMJD3 interact with mixed-lineage leukemia (MLL) complexes 2 and 3, both of which have been shown to methylate histone H3 at Lys4 (6,7). The UTY gene is expressed in most tissues in the male mouse (10).

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. Agger, K. et al. (2007) *Nature* 449, 731-4.
5. Lan, F. et al. (2007) *Nature* 449, 689-94.
6. Lee, M.G. et al. (2007) *Science* 318, 447-50.
7. De Santa, F. et al. (2007) *Cell* 130, 1083-94.
8. Xiang, Y. et al. (2007) *Cell Res* 17, 850-7.
9. Greenfield, A. et al. (1998) *Hum Mol Genet* 7, 737-42.
10. Greenfield, A. et al. (1996) *Nat Genet* 14, 474-8.

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**WB:** Western Blotting

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **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
GP: Guinea Pig **Rab:** rabbit **All:** all species expected

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