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Tri-Methyl-Histone H3 (Lys9) Antibody



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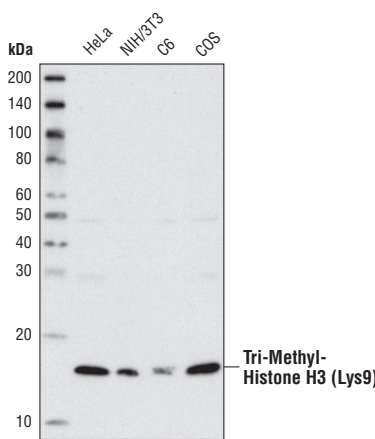
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Applications	Species Cross-Reactivity*	Molecular Wt.	Source
W, IF-IC, ChIP Endogenous	H, M, R, Mk, (Pg, Dm, Hr)	17 kDa	Rabbit**

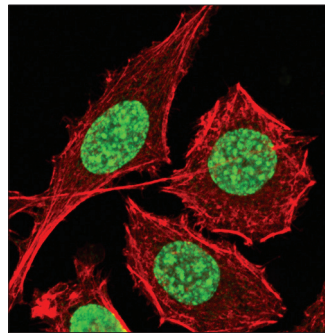
Background: The nucleosome, made up of four core histone proteins (H2A, H2B, H3 and H4), is the primary building block of chromatin. Originally thought to function as a static scaffold for DNA packaging, histones have now been shown to be dynamic proteins, undergoing multiple types of post-translational modifications, including acetylation, phosphorylation, methylation and ubiquitination (1). Histone methylation is a major determinant for the formation of active and inactive regions of the genome and is crucial for the proper programming of the genome during development (2,3). Arginine methylation of histones H3 (Arg2, 17, 26) and H4 (Arg3) promotes transcriptional activation and is mediated by a family of protein arginine methyltransferases (PRMTs), including the co-activators PRMT1 and CARM1 (PRMT4) (4). In contrast, a more diverse set of histone lysine methyltransferases has been identified, all but one of which contain a conserved catalytic SET domain originally identified in the *Drosophila* Su(var)3-9. Enhancer of zeste and Trithorax proteins. Lysine methylation occurs primarily on histones H3 (Lys4, 9, 27, 36, 79) and H4 (Lys20) and has been implicated in both transcriptional activation and silencing (4). Methylation of these lysine residues coordinates the recruitment of chromatin modifying enzymes containing methyl-lysine binding modules such as chromodomains (HP1, PRC1), PHD fingers (BPTF, ING2), tudor domains (53BP1) and WD-40 domains (WDR5) (5-8). The recent discovery of histone demethylases such as PADI4, LSD1, JMJD1, JMJD2 and JHDM1 has shown that methylation is a reversible epigenetic mark (9).

Specificity/Sensitivity: Tri-Methyl-Histone H3 (Lys9) Antibody detects endogenous levels of histone H3 only when tri-methylated on Lys9. The antibody does not cross-react with non-methylated, mono-methylated, or di-methylated Lys9. In addition, the antibody does not cross-react with non-methylated, mono-methylated, di-methylated or tri-methylated histone H3 Lys4, Lys27, Lys36 or histone H4 Lys20.

Source/Purification: Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to the amino terminus of histone H3 in which Lys9 is tri-methylated. Antibodies are purified by protein A and peptide affinity chromatography.



Western blot analysis of extracts from various cell lines using Tri-Methyl-Histone H3 (Lys9) Antibody.



Confocal immunofluorescent analysis of PC-3 cells using Tri-Methyl-Histone H3 (Lys9) Antibody (green). Actin filaments have been labeled with DyLight™ 554 Phalloidin #13054 (red).

Entrez-Gene ID #8352
UniProt ID #P68431

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.

*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
Immunofluorescence (IF-IC)	1:800
Chromatin IP	1:25

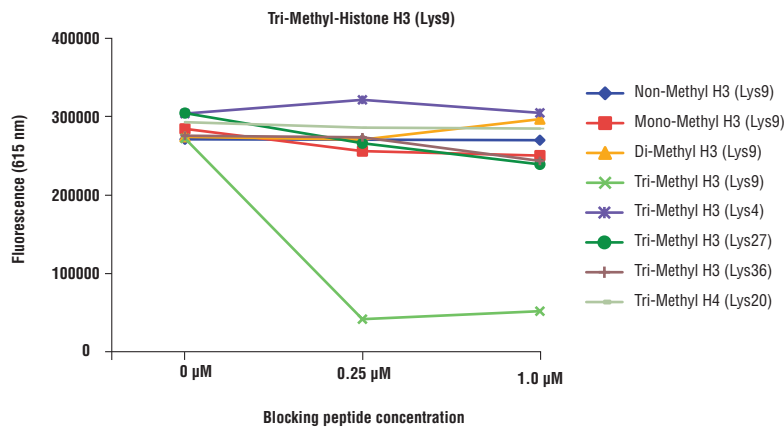
For application specific protocols please see the web page for this product at www.cellsignal.com.

Please visit www.cellsignal.com for a complete listing of recommended companion products.

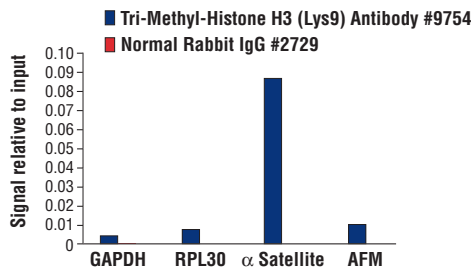
IMPORTANT: For western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween®20 at 4°C with gentle shaking, overnight.

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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.



Tri-Methyl-Histone H3 (Lys9) Antibody specificity was determined by peptide ELISA. The graph depicts the binding of the antibody to pre-coated tri-methyl histone H3 (Lys9) peptide in the presence of increasing concentrations of various competitor peptides. As shown, only the tri-methyl histone H3 (Lys9) peptide competed away binding of the antibody.



Chromatin immunoprecipitations were performed with cross-linked chromatin from 4×10^6 HeLa cells and either 20 μ l of Tri-Methyl-Histone H3 (Lys9) Antibody or 2 μ l Normal Rabbit IgG #2729, using SimpleChIP[®] Enzymatic Chromatin IP Kit (Magnetic Beads) #9003. The enriched DNA was quantified by real-time PCR using SimpleChIP[®] Human GAPDH Exon 1 Primers #5516, SimpleChIP[®] Human RPL30 Exon 3 Primers #7014, SimpleChIP[®] Human α Satellite Repeat Primers #4486, and SimpleChIP[®] Human AFM Intron 1 Primers #5098. The amount of immunoprecipitated DNA in each sample is represented as signal relative to the total amount of input chromatin, which is equivalent to one.

Background References:

- (1) Peterson, C.L. and Laniel, M.A. (2004) *Curr. Biol.* 14, R546–R551.
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- (4) Lee, D.Y. et al. (2005) *Endocr. Rev.* 26, 147–170.
- (5) Daniel, J.A. et al. (2005) *Cell Cycle* 4, 919–926.
- (6) Shi, X. et al. (2006) *Nature* 442, 96–99.
- (7) Wysocka, J. et al. (2006) *Nature* 442, 86–90.
- (8) Wysocka, J. et al. (2005) *Cell* 121, 859–872.
- (9) Trojer, P. and Reinberg, D. (2006) *Cell* 125, 213–217.