

# Histone H3 (D1H2) XP® Rabbit mAb (Biotinylated)



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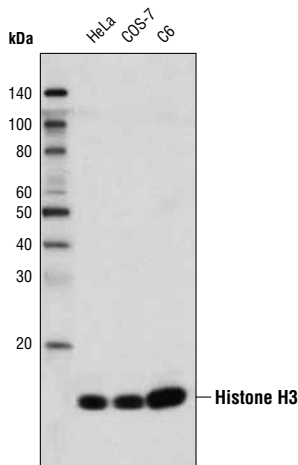
Applications W Endogenous	Species Cross-Reactivity* H, M, R, Mk (Hm, C, Dm, X, Z, B)	Molecular Wt. 17 kDa	Isotype Rabbit IgG
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**Description:** This Cell Signaling Technology antibody is conjugated to biotin under optimal conditions. The biotinylated antibody is expected to exhibit the same species cross-reactivity as the unconjugated Histone H3 (D1H2) XP® Rabbit mAb #4499.

**Background:** Modulation of chromatin structure plays an important role in the regulation of transcription in eukaryotes. The nucleosome, made up of DNA wound around eight core histone proteins (two each of H2A, H2B, H3, and H4), is the primary building block of chromatin (1). The amino-terminal tails of core histones undergo various post-translational modifications, including acetylation, phosphorylation, methylation, and ubiquitination (2-5). These modifications occur in response to various stimuli and have a direct effect on the accessibility of chromatin to transcription factors and, therefore, gene expression (6). In most species, histone H2B is primarily acetylated at Lys5, 12, 15, and 20 (4,7). Histone H3 is primarily acetylated at Lys9, 14, 18, 23, 27, and 56. Acetylation of H3 at Lys9 appears to have a dominant role in histone deposition and chromatin assembly in some organisms (2,3). Phosphorylation at Ser10, Ser28, and Thr11 of histone H3 is tightly correlated with chromosome condensation during both mitosis and meiosis (8-10). Phosphorylation at Thr3 of histone H3 is highly conserved among many species and is catalyzed by the kinase haspin. Immunostaining with phospho-specific antibodies in mammalian cells reveals mitotic phosphorylation at Thr3 of H3 in prophase and its dephosphorylation during anaphase (11).

**Specificity/Sensitivity:** Histone H3 (D1H2) XP® Rabbit mAb detects endogenous levels of total Histone H3 protein, including isoforms H3.1, H3.2, and H3.3. This antibody also detects the Histone H3 variant CENP-A. This antibody does not cross-react with other core histones.

**Source/Purification:** Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to the carboxy terminus of the human histone H3 protein.



Western blot analysis of extracts from various cell lines using Histone H3 (D1H2) XP® Rabbit mAb (Biotinylated).

**Background References:**

- (1) Workman, J.L. and Kingston, R.E. (1998) *Annu Rev Biochem* 67, 545-79.
- (2) Hansen, J.C. et al. (1998) *Biochemistry* 37, 17637-41.
- (3) Strahl, B.D. and Allis, C.D. (2000) *Nature* 403, 41-5.
- (4) Cheung, P. et al. (2000) *Cell* 103, 263-71.
- (5) Bernstein, B.E. and Schreiber, S.L. (2002) *Chem Biol* 9, 1167-73.
- (6) Jaskelioff, M. and Peterson, C.L. (2003) *Nat Cell Biol* 5, 395-9.
- (7) Thorne, A.W. et al. (1990) *Eur J Biochem* 193, 701-13.
- (8) Hendzel, M.J. et al. (1997) *Chromosoma* 106, 348-60.
- (9) Goto, H. et al. (1999) *J Biol Chem* 274, 25543-9.
- (10) Preuss, U. et al. (2003) *Nucleic Acids Res* 31, 878-85.
- (11) Dai, J. et al. (2005) *Genes Dev* 19, 472-88.

Entrez-Gene ID #8350  
 Swiss-Prot Acc. #P68931

**Storage:** Supplied in 136 mM NaCl, 2.6 mM KCl, 12 mM sodium phosphate (pH 7.4) dibasic, 2 mg/ml BSA and 50% glycerol. Store at -20°C. Do not aliquot antibody.

**\*Species cross-reactivity other than human, mouse, rat and monkey is determined by western blot using the unconjugated antibody.**

**Biotinylated antibodies are designed to be detected using streptavidin or anti-Biotin antibody conjugates.**

**Recommended Antibody Dilutions:**  
 Western blotting 1:1000

**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% nonfat dry milk, 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.