Histone H3 (D1H2) XP® Rabbit mAb

**Applications**
- W, HIC-P, IF-IC, F
- Endogenous

**Species Cross-Reactivity**
- H, M, R, Mk, (Hm, Dm, X, Z, B)

**Molecular Wt.**
- 17 kDa

**Isotype**
- Rabbit IgG**

**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, and 27, and Lys5, 12, 15, and 20 (4,7). 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, 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. 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).

**Recommended Antibody Dilutions:**
- Western Blotting 1:2000
- Immunohistochemistry (Paraffin) 1:400
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- Immunohistochemistry (Paraffin) 1:400
- Immunofluorescence (IF-IC) 1:400
- IF Protocol: Methanol Permeabilization required

**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.

**Entrez-Gene ID:** #8352
**UniProt ID:** #P68431
**Recommended Companion Products:**
- **Antibody diluent:** SignalStain® Antibody Diluent #8112
- **Unmasking buffer:** Citrate
- **Antibody diluent:** SignalStain® Antibody Diluent #8112
- **Flow Cytometry** 1:50

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

**For Research Use Only. Not For Use In Diagnostic Procedures.**
Flow cytometric analysis of human peripheral blood lymphocytes using Histone H3 (D1H2) XP® Rabbit mAb (blue) compared to Rabbit (DA1E) mAb IgG XP® Isotype Control #3900 (red). Anti-rabbit IgG (H+L), F(ab’)2 Fragment (Alexa Fluor® 647 Conjugate) #4414 was used as a secondary antibody.