

# Histone H3 (Mono Methyl Lys4) (PT0735R) PT™ Rabbit mAb

CatalogNo: YM8544 **Recombinant** 

## Key Features

### Host Species

- Rabbit

### Reactivity

- Human, Mouse, Rat

### Applications

- WB, IHC, IF, IP, ELISA, CHIP, Cut&Tag

### MW

- 15kD  
(Calculated)  
15kD (Observed)

### Isotype

- IgG, Kappa

## Storage

**Storage\*** -15°C to -25°C/1 year (Do not lower than -25°C)

**Formulation** PBS, 50% glycerol, 0.05% Proclin 300, 0.05% BSA

## Recommended Dilution Ratios

**IHC 1:5000-1:20000**

**WB 1:2000-1:10000**

**IF 1:200-1:1000**

**ELISA 1:5000-1:20000**

**IP 1:50-1:200**

**CHIP 1:50-1:100**

**Cut&Tag 1:50-1:100**

## Basic Information

**Clonality** Monoclonal

**Clone Number** PT0735R

## Immunogen Information

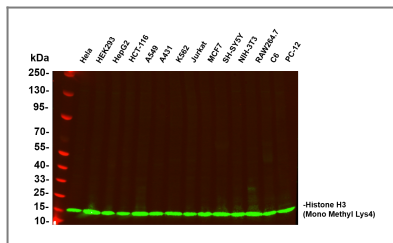
|             |                                                                                  |
|-------------|----------------------------------------------------------------------------------|
| Immunogen   | The specific immunogen used to produce this antibody is proprietary information. |
| Specificity | The antibody detects endogenous Histone H3(Mono Methyl AE13) protein.            |

## Target Information

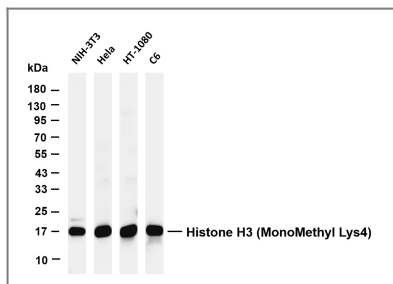
|                       |                                                                                                                                       |                                                             |            |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|------------|
| Gene name             | HIST1H3A/HIST1H3/HIST1H3C/HIST1H3D/HIST1H3E/HIST1H3F/HIST1H3G/HIST1H3H/HIST1H3I/HIST1H3J/HIST2H3A/HIST2H3C/HIST2H3D/H3F3A/H3F3B/H3F3C |                                                             |            |
| Protein Name          | Histone H3.1/Histone H3.2/Histone H3.3/Histone H3.3C                                                                                  |                                                             |            |
|                       | Organism                                                                                                                              | Gene ID                                                     | UniProt ID |
|                       | Human                                                                                                                                 | 8350; 8351; 8352; 8353; 8354; 8355; 8356; 8357; 8358; 8968; | P68431;    |
|                       | Mouse                                                                                                                                 |                                                             | P68433;    |
|                       | Rat                                                                                                                                   |                                                             | Q6LEDQ;    |
| Cellular Localization | Nucleus. Chromosome.                                                                                                                  |                                                             |            |
| Tissue specificity    | Blood ,Epithelium ,Kidney ,Lung ,Ovary ,Spleen ,Uterus ,                                                                              |                                                             |            |

**Function** Caution:Was originally (PubMed:2587222) thought to originate from mouse. ,developmental stage:Expressed during S phase , then expression strongly decreases as cell division slows down during the process of differentiation. ,Function:Core component of nucleosome. Nucleosomes wrap and compact DNA into chromatin , limiting DNA accessibility to the cellular machineries which require DNA as a template. Histones thereby play a central role in transcription regulation , DNA repair , DNA replication and chromosomal stability. DNA accessibility is regulated via a complex set of post-translational modifications of histones , also called histone code , and nucleosome remodeling. ,mass spectrometry:Monoisotopic with N-acetylserine PubMed:16457589 ,miscellaneous:This histone is only present in mammals and is enriched in acetylation of Lys-15 and dimethylation of Lys-10 (H3K9me2) . ,PTM:Acetylation is generally linked to gene activation. Acetylation on Lys-10 (H3K9ac) impairs methylation at Arg-9 (H3R8sme2) . Acetylation on Lys-19 (H3K18ac) and Lys-24 (H3K24ac) favors methylation at Arg-18 (H3R17me) . ,PTM:Asymmetric dimethylation at Arg-18 (H3R17me2a) by CARM1 is linked to gene activation. Symmetric dimethylation at Arg-9 (H3R8sme2) by PRMT5 is linked to gene repression. Asymmetric dimethylation at Arg-3 (H3R2me2a) by PRMT6 is linked to gene repression and is mutually exclusive with H3 Lys-5 methylation (H3K4me2 and H3K4me3) . H3R2me2a is present at the 3' of genes regardless of their transcription state and is enriched on inactive promoters , while it is absent on active promoters. ,PTM:Citrullination at Arg-9 (H3R8ci) and/or Arg-18 (H3R17ci) by PAD14 impairs methylation and represses transcription. ,PTM:Deiminated on Arg-4 in granulocytes upon calcium entry. ,PTM:Methylation at Lys-5 (H3K4me) , Lys-37 (H3K36me) and Lys-80 (H3K79me) are linked to gene activation. Methylation at Lys-5 (H3K4me) facilitates subsequent acetylation of H3 and H4. Methylation at Lys-80 (H3K79me) is associated with DNA double-strand break (DSB) responses and is a specific target for TP53BP1. Methylation at Lys-10 (H3K9me) and Lys-28 (H3K27me) are linked to gene repression. Methylation at Lys-10 (H3K9me) is a specific target for HP1 proteins (CBX1 , CBX3 and CBX5) and prevents subsequent phosphorylation at Ser-11 (H3S10ph) and acetylation of H3 and H4. Methylation at Lys-5 (H3K4me) and Lys-80 (H3K79me) require preliminary monoubiquitination of H2B at 'Lys-120'. Methylation at Lys-10 (H3K9me) and Lys-28 (H3K27me) are enriched in inactive X chromosome chromatin. ,PTM:Monoubiquitination of Lys-120 by RING1 and RNF2/RING2 complex gives a specific tag for epigenetic transcriptional repression and participates in X chromosome inactivation of female mammals. It is involved in the initiation of both imprinted and random X inactivation. Ubiquitinated H2A is enriched in inactive X chromosome chromatin. Ubiquitination of H2A functions downstream of methylation of 'Lys-27' of histone H3. Monoubiquitination of Lys-120 by RNF2/RING2 can also be induced by ultraviolet and may be involved in DNA repair. Following DNA double-strand breaks (DSBs) , it is ubiquitinated through 'Lys-63' linkage of ubiquitin moieties by the E2 ligase UBE2N and the E3 ligases RNF8 and RNF168 , leading to the recruitment of repair proteins to sites of DNA damage. Monoubiquitination and ionizing radiation-induced 'Lys-63'-linked ubiquitination are distinct events. ,PTM:Phosphorylated at Thr-4 (H3T3ph) by GSG2/haspin during prophase and dephosphorylated during anaphase. At centromeres , specifically phosphorylated at Thr-12 (H3T11ph) from prophase to early anaphase , probably by DAPK3 (By similarity) . Phosphorylation at Ser-11 (H3S10ph) by AURKB is crucial for chromosome condensation and cell-cycle progression during mitosis and meiosis. In addition phosphorylation at Ser-11 (H3S10ph) by RPS6KA4 and RPS6KA5 is important during interphase because it enables the transcription of genes following external stimulation , like mitogens , stress , growth factors or UV irradiation and result in the activation of genes , such as c-fos and c-jun. Phosphorylation at Ser-11 , which is linked to gene activation , prevents methylation at Lys-10 (H3K9me) but facilitates acetylation of H3 and H4. Phosphorylation at Ser-11 (H3S10ph) by AURKB mediates the dissociation of HP1 proteins (CBX1 , CBX3 and CBX5) from heterochromatin. Phosphorylation at Ser-11 (H3S10ph) is also an essential regulatory mechanism for neoplastic cell transformation. Phosphorylated at Ser-29 (H3S28ph) by MLTK isoform 1 , RPS6KA5 or AURKB during mitosis or upon ultraviolet B irradiation. ,PTM:Phosphorylated at Thr-4 (H3T3ph) by GSG2/haspin during prophase and dephosphorylated during anaphase. At centromeres , specifically phosphorylated at Thr-12 (H3T11ph) from prophase to early anaphase , probably by DAPK3. Phosphorylation at Ser-11 (H3S10ph) by AURKB is crucial for chromosome condensation and cell-cycle progression during mitosis and meiosis. In addition phosphorylation at Ser-11 (H3S10ph) by RPS6KA4 and RPS6KA5 is important during interphase because it enables the transcription of genes following external stimulation , like mitogens , stress , growth factors or UV irradiation and result in the activation of genes , such as c-fos and c-jun. Phosphorylation at Ser-11 (H3S10ph) , which is linked to gene activation , prevents methylation at Lys-10 (H3K9me) but facilitates acetylation of H3 and H4. Phosphorylation at Ser-11 (H3S10ph) by AURKB mediates the dissociation of HP1 proteins (CBX1 , CBX3 and CBX5) from heterochromatin. Phosphorylation at Ser-11 (H3S10ph) is also an essential regulatory mechanism for neoplastic cell transformation. Phosphorylated at Ser-29 by MLTK isoform 1 , RPS6KA5 or AURKB during mitosis or upon ultraviolet B irradiation. ,PTM:Phosphorylation on Ser-2 is enhanced during mitosis. Phosphorylation on Ser-2 by RPS6KA5/MSK1 directly represses transcription. Acetylation of H3 inhibits Ser-2 phosphorylation by RPS6KA5/MSK1. ,PTM:Symmetric dimethylation on Arg-4 by the PRDM1/PRMT5 complex may play a crucial role in the germ-cell lineage. ,PTM:The chromatin-associated form is phosphorylated on Thr-121 during mitosis. ,PTM:Ubiquitinated by the CUL4-DDB-RBX1 complex in response to ultraviolet irradiation. This may weaken the interaction between histones and DNA and facilitate DNA accessibility to repair proteins. ,similarity:Belongs to the histone H2A family. ,similarity:Belongs to the histone H3 family. ,subunit:The nucleosome is a histone octamer containing two molecules each of H2A , H2B , H3 and H4 assembled in one H3-H4 heterotetramer and two H2A-H2B heterodimers. The octamer wraps approximately 147 bp of DNA. ,subunit:The nucleosome is a histone octamer containing two molecules each of H2A , H2B , H3 and H4 assembled in one H3-H4 heterotetramer and two H2A-H2B heterodimers. The octamer wraps approximately 147 bp of DNA. During nucleosome assembly the chaperone ASF1A interacts with the histone H3-H4 heterodimer. ,

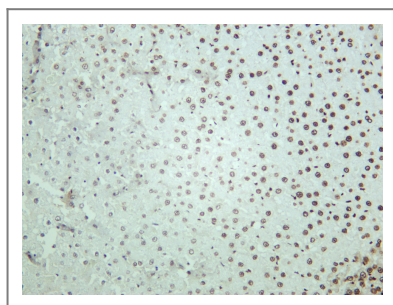
## Validation Data



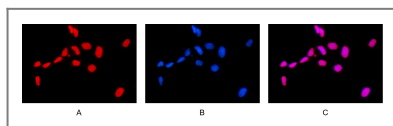
Various whole cell lysates were separated by 4-20% SDS-PAGE, and the primary antibody was used at 4°C over night with a 1:5000 dilution. The Dylight 800-conjugated Goat anti-Rabbit antibody (Cat:RS23920) was used to detect the antibody. Lane1: HeLa - Human cervical cancer Lane2: HEK293 - Human normal embryonic kidney Lane3: HepG2 - Human hepatocellular carcinoma Lane4: HCT-116 - Human colon cancer Lane5: A549 - Human lung adenocarcinoma Lane6: A431 - Human skin squamous cell carcinoma Lane7: K562 - Human chronic myeloid leukemia Lane8: Jurkat - Human acute T cell leukemia cells Lane9: MCF7 - Human breast cancer Lane10: SH-SY5Y - Human neuroblastoma cells Lane11: NIH-3T3 - NIH mouse fibroblasts Lane12: RAW264.7 - Mouse mononuclear macrophage leukemia cells Lane13: C6 - Rat glioma cells Lane14: PC-12 - Pheochromocytoma in rats Predicted band size: 15kDa Observed band size: 15kDa



Various whole cell lysates were separated by 4-20% SDS-PAGE, and the membrane was blotted with anti-Histone H3 (MonoMethyl Lys4) antibody. The HRP-conjugated Goat anti-Rabbit IgG (H + L) antibody was used to detect the antibody. Lane 1: NIH-3T3 Lane 2: HeLa Lane 3: HT-1080 Lane 4: C6 Predicted band size: 15kDa Observed band size: 15kDa



Rat liver was stained with anti-Histone H3 (Mono Methyl Lys4) rabbit antibody



Immunofluorescence analysis of HEK293. Picture A: Histone H3 antibody (red). Picture B: DAPI (blue). Picture C: Merge of A+B

## Contact information

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Please scan the QR code to access additional product information:  
**Histone H3 (Mono Methyl Lys4) (PT0735R) PT™ Rabbit mAb**