



Antibody Specification

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| Description                 | histone cluster 1 H3 family member a(HIST1H3A) Homo sapiens Histones are basic nuclear proteins that are the major components of the nucleosome core particle, the basic unit of the chromosomal fiber in eukaryotes. This structure consists of approximately 146 bp of DNA wrapped twice around a core of eight histone molecules, two molecules of each of the four core histones (H2A, H2B, H3, and H4). The chromatin fiber is further compacted by the association of linker histones with the DNA between the nucleosomes to form higher order chromatin structures. This gene is intronless. HIST1H3A is a member of the histone H3 family. Transcripts from this gene lack polyA tails; instead, they contain a polyU tail. HIST1H3A is found in the large histone gene cluster on chromosome 6p22-p21.3. [provided by RefSeq, Aug 2015], |
| Cell Pathway/<br>Category   | Systemic lupus erythematosus,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Protein<br>Expression       | Blood,Epithelium,Kidney,Lung,Ovary,Spleen,Uterus,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Subcellular<br>Localization | nuclear chromosome,nuclear chromosome, telomeric region,nucleosome,nuclear nucleosome,extracellular space,cell-cell junction,membrane,protein complex,extracellular exosome,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

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|                  | <p>caution:Was originally (<a href="#">PubMed:2587222</a>) thought to originate from mouse.,developmental stage:Expresses at embryonic stages.,expression pattern:Expression decreases as cell division slows down during the process of differentiation.,function:Core component of nucleosome core particle which wraps DNA into chromatin, limiting DNA accessibility to the cellular machineries which require DNA as a template. Involved in transcription regulation, DNA repair, DNA replication and chromosomal stability. DNA accessibility is regulated via acetylation/deacetylation of histones, also called histone code, and nucleosome remodeling.,mass spectrometry:Monoisotopic with molecular weight 90 kDa.,<a href="#">PubMed:16457589</a>,miscellaneous:This histone is only present in mammals and is enriched in acetylating agents like histone H3K9me2).,.PTM:Acetylation is generally linked to gene activation. Acetylation on Lys-10 (H3K9ac) impacts methylation levels on Lys-19 (H3K18ac) and Lys-24 (H3K24ac) favors methylation at Arg-18 (H3R17me).,.PTM:Asymmetric dimethylation on lysines is linked to gene activation. Symmetric dimethylation at Arg-9 (H3R8sme2) by PRMT5 is linked to gene repression. Asymmetric dimethylation at Arg-9 (H3R8ci) and/or Arg-18 (H3R17ci) by PADI4 impairs methylation and represses transcription.,PTM:Hydroxy-methylated H3K9me2 entry.,PTM:Methylation at Lys-5 (H3K4me), Lys-37 (H3K36me) and Lys-80 (H3K79me) are linked to gene expression regulation. Methylation facilitates subsequent acetylation of H3 and H4. Methylation at Lys-80 (H3K79me) is associated with DNase hypersensitivity specific target for TP53BP1. Methylation at Lys-10 (H3K9me) and Lys-28 (H3K27me) are linked to gene silencing. Methylation at Lys-11 (H3S10ph) specific target for HP1 proteins (CBX1, CBX3 and CBX5) and prevents subsequent phosphorylation at Ser-11 (H3S10ph). Methylation at Lys-5 (H3K4me) and Lys-80 (H3K79me) require preliminary monoubiquitination of H2B and H2A. Methylation at Lys-28 (H3K27me) are enriched in inactive X chromosome chromatin.,PTM:Monoubiquitination of Lys-120 by RNF2/RING2 acts as a ubiquitin tag for epigenetic transcriptional repression and participates in X chromosome inactivation of female mice through monoallelically imprinted and random X inactivation. Ubiquitinated H2A is enriched in inactive X chromosome chromatins. Monoubiquitination of methylated methylation of 'Lys-27' of histone H3. Monoubiquitination of Lys-120 by RNF2/RING2 can also be induced by DNA damage. Following DNA double-strand breaks (DSBs), it is ubiquitinated through 'Lys-63' linkage of ubiquitin moiety involving E3 complex containing RNF8 and RNF168, leading to the recruitment of repair proteins to sites of DNA damage. Monoubiquitination and polyubiquitination are distinct events.,PTM:Phosphorylated at Thr-4 (H3T3ph) by GSG2/haspin during prophase I and II of meiosis centromeres, specifically phosphorylated at Thr-12 (H3T11ph) from prophase to early anaphase, probably mediated by AURKB. Phosphorylation at Ser-11 (H3S10ph) by AURKB is crucial for chromosome condensation and cell-cycle progression during mitosis and meiosis. Phosphorylation at Ser-11 (H3S10ph) by RPS6KA4 and RPS6KA5 is important during interphase because it enables the transcription of genes responsive to growth factors or UV irradiation and result in the activation of genes, such as c-fos and c-jun. Phosphorylation mediates gene activation, prevents methylation at Lys-10 (H3K9me) but facilitates acetylation of H3 and H4. Phosphorylation promotes dissociation of HP1 proteins (CBX1, CBX3 and CBX5) from heterochromatin. Phosphorylation serves as a regulatory mechanism for neoplastic cell transformation. Phosphorylated at Ser-29 (H3S28ph) by MLTK isoform 1 upon ultraviolet B irradiation.,PTM:Phosphorylated at Thr-4 (H3T3ph) by GSG2/haspin during prophase I and II of meiosis centromeres, specifically phosphorylated at Thr-12 (H3T11ph) from prophase to early anaphase, probably mediated by AURKB. Phosphorylation at Ser-11 (H3S10ph) by AURKB is crucial for chromosome condensation and cell-cycle progression during mitosis and meiosis. Phosphorylation at Ser-11 (H3S10ph) by RPS6KA4 and RPS6KA5 is important during interphase because it enables the transcription of genes responsive to growth factors or UV irradiation and result in the activation of genes, such as c-fos and c-jun. Phosphorylation mediates gene activation, prevents methylation at Lys-10 (H3K9me) but facilitates acetylation of H3 and H4. Phosphorylation promotes dissociation of HP1 proteins (CBX1, CBX3 and CBX5) from heterochromatin. Phosphorylation serves as a regulatory mechanism for neoplastic cell transformation. Phosphorylated at Ser-29 by MLTK isoform 1, RPS6KA5 or RPLP0 upon ultraviolet B irradiation.,PTM:Phosphorylation on Ser-2 is enhanced during mitosis. Phosphorylation on Ser-2 by RPS6KA5 inhibits acetylation of H3 inhibits Ser-2 phosphorylation by RPS6KA5/MSK1.,PTM:Succinylation on lysine residues plays a crucial role in the germ-cell lineage.,PTM:The chromatin-associated form is phosphorylated on Thr-121 and interacts with RBX1 complex in response to ultraviolet irradiation. This may weaken the interaction between histones and other nuclear proteins.,similarity:Belongs to the histone H2A family.,similarity:Belongs to the histone H3 family.,subunit composition:Two molecules each of H2A, H2B, H3 and H4 assembled in one H3-H4 heterodimer 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 heterotetramer and two H2A-H2B heterodimers. The octamer wraps approximately 147 bp of DNA. During DNA replication, it interacts with the histone H3-H4 heterodimer.,</p> |
| Protein Function |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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| Usage            | For Research Use Only! Not for diagnostic or therapeutic procedures.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            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