

Product datasheet

Anti-Histone H3 (unmodified K4) antibody [RM186] - N-terminal ab238310

3 Images

Overview

Product name	Anti-Histone H3 (unmodified K4) antibody [RM186] - N-terminal
Description	Rabbit monoclonal [RM186] to Histone H3 (unmodified K4) - N-terminal
Host species	Rabbit
Specificity	ab238310 recognizes Histone H3 unmodified at Lys4 and does not recognize acetylated or methylated Lys4. The antibody binding specificity allows for modifications of Arg2, Thr3, and/or other modifications in Histone H3.
Tested applications	Suitable for: WB, ICC/IF
Species reactivity	Reacts with: Human
Immunogen	Synthetic peptide corresponding to Human Histone H3 (N terminal) (unmodified K4). Database link: Q16695
Positive control	WB: Acid extracts of HeLa cells. ICC/IF: HeLa cells treated with sodium butyrate.

Properties

Form	Liquid
Storage instructions	Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -20°C long term. Avoid freeze / thaw cycle.
Storage buffer	Preservative: 0.09% Sodium azide Constituents: 50% Glycerol, PBS, 1% BSA
Purity	Protein A purified
Purification notes	Purified from an animal origin-free culture supernatant.
Clonality	Monoclonal
Clone number	RM186
Isotype	IgG

Applications

Our [Abpromise guarantee](#) covers the use of **ab238310** in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Application	Abreviews	Notes
WB		Use a concentration of 1 - 2 µg/ml. Predicted molecular weight: 15 kDa.
ICC/IF		Use a concentration of 0.5 - 2 µg/ml.

Target

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.
Sequence similarities	Belongs to the histone H3 family.
Developmental stage	Expressed during S phase, then expression strongly decreases as cell division slows down during the process of differentiation.
Post-translational modifications	<p>Acetylation is generally linked to gene activation. Acetylation on Lys-10 (H3K9ac) impairs methylation at Arg-9 (H3R8me2s). Acetylation on Lys-19 (H3K18ac) and Lys-24 (H3K24ac) favors methylation at Arg-18 (H3R17me).</p> <p>Citrullination at Arg-9 (H3R8ci) and/or Arg-18 (H3R17ci) by PAD4 impairs methylation and represses transcription.</p> <p>Asymmetric dimethylation at Arg-18 (H3R17me2a) by CARM1 is linked to gene activation. Symmetric dimethylation at Arg-9 (H3R8me2s) 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.</p> <p>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.</p> <p>Phosphorylated at Thr-4 (H3T3ph) by GSG2/haspin during prophase and dephosphorylated during anaphase. 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.</p> <p>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 (H3S28ph) by MLTK isoform 1, RPS6KA5 or AURKB during mitosis or upon ultraviolet B irradiation. Phosphorylation</p>

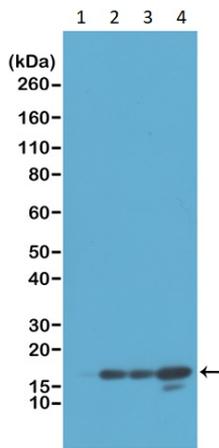
at Thr-7 (H3T6ph) by PRKCBB is a specific tag for epigenetic transcriptional activation that prevents demethylation of Lys-5 (H3K4me) by LSD1/KDM1A. At centromeres, specifically phosphorylated at Thr-12 (H3T11ph) from prophase to early anaphase, by DAPK3 and PKN1. Phosphorylation at Thr-12 (H3T11ph) by PKN1 is a specific tag for epigenetic transcriptional activation that promotes demethylation of Lys-10 (H3K9me) by KDM4C/JMJD2C. Phosphorylation at Tyr-42 (H3Y41ph) by JAK2 promotes exclusion of CBX5 (HP1 alpha) from chromatin.

Monoubiquitinated by RAG1 in lymphoid cells, monoubiquitination is required for V(D)J recombination (By similarity). 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.

Cellular localization

Nucleus. Chromosome.

Images



Western blot - Anti-Histone H3 (unmodified K4) antibody [RM186] - N-terminal (ab238310)

All lanes : Anti-Histone H3 (unmodified K4) antibody [RM186] - N-terminal (ab238310) at 1 μ g/ml

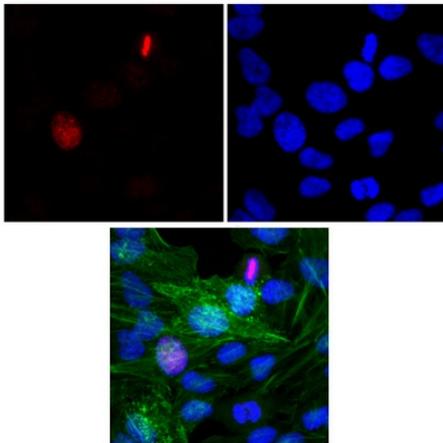
Lane 1 : Acid extracts of HeLa (human epithelial cell line from cervix adenocarcinoma) cells treated with sodium butyrate

Lane 2 : Acid extracts of HeLa cells treated with Nocodazole

Lane 3 : Acid extracts of HeLa cells

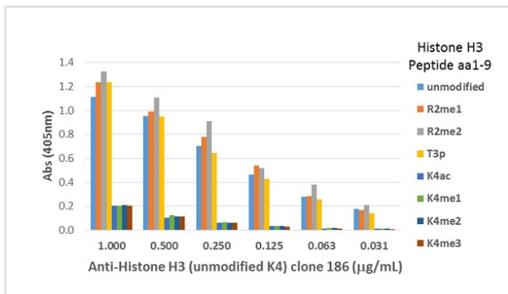
Lane 4 : Recombinant Histone H3.1

Predicted band size: 15 kDa



Immunocytochemistry/ Immunofluorescence - Anti-Histone H3 (unmodified K4) antibody [RM186] - N-terminal (ab238310)

HeLa (human epithelial cell line from cervix adenocarcinoma) cells treated with sodium butyrate stained for Histone H3 (unmodified K4) (red) using ab238310 at 2 μ g/ml in ICC/IF. Actin filaments have been labeled with fluorescein phalloidin (green).



ab238310 specifically recognizes Histone H3 unmodified at Lys4 and does not recognize acetylated, mono-methylated, dimethylated, or trimethylated Lys4. The antibody binding specificity allows for modifications of Arg2 or Thr3 in histone H3.

ELISA - Anti-Histone H3 (unmodified K4) antibody
[RM186] - N-terminal (ab238310)

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