

## Product datasheet

# Anti-Histone H3 (acetyl K9) antibody [RM161] ab218553

Recombinant

[7 Images](#)

### Overview

|                            |  |
|----------------------------|--|
| <b>Product name</b>        | Anti-Histone H3 (acetyl K9) antibody [RM161]   |
| <b>Description</b>         | Rabbit monoclonal [RM161] to Histone H3 (acetyl K9)  |
| <b>Host species</b>        | Rabbit   |
| <b>Specificity</b>         | Reacts to Histone H3 (acetyl K9). No cross reactivity with other acetylated Lysines in histone H3. |
| <b>Tested applications</b> | <b>Suitable for:</b> ICC/IF, WB, ELISA, ICC, ChIP  |
| <b>Species reactivity</b>  | <b>Reacts with:</b> Human  |
| <b>Immunogen</b>           | Synthetic peptide corresponding to Human Histone H3 (N terminal) (acetyl K9).                      |
| <b>Positive control</b>    | WB: HeLa cells treated with sodium butyrate. ICC/IF: HeLa and HepG2 cells.                         |

### Properties

|                             |   |
|-----------------------------|---|
| <b>Form</b>                 | Liquid  |
| <b>Storage instructions</b> | 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. |
| <b>Storage buffer</b>       | Preservative: 0.09% Sodium azide<br>Constituents: 50% Glycerol (glycerin, glycerine), PBS, 1% BSA                                 |
| <b>Purity</b>               | Protein A purified  |
| <b>Clonality</b>            | Monoclonal  |
| <b>Clone number</b>         | RM161   |
| <b>Isotype</b>              | IgG   |

### Applications

**The Abpromise guarantee** Our **Abpromise guarantee** covers the use of ab218553 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                                 |
|-------------|-----------|---------------------------------------|
| ICC/IF      |           | Use a concentration of 0.5 - 2 µg/ml. |

| Application | Abreviews | Notes                                  |
|-------------|-----------|--|
| WB          |           | Use a concentration of 0.25 - 1 µg/ml. |
| ELISA       |           | Use a concentration of 0.2 - 1 µg/ml.  |
| ICC         |           | Use a concentration of 0.5 - 2 µg/ml.  |
| ChIP        |           | Use a concentration of 2 - 10 µg/ml.   |

## Target

|   |   |
|---|---|
| <b>Function</b>                         | 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.  |
| <b>Sequence similarities</b>            | Belongs to the histone H3 family.   |
| <b>Developmental stage</b>              | Expressed during S phase, then expression strongly decreases as cell division slows down during the process of differentiation.   |
| <b>Post-translational modifications</b> | <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</p> |

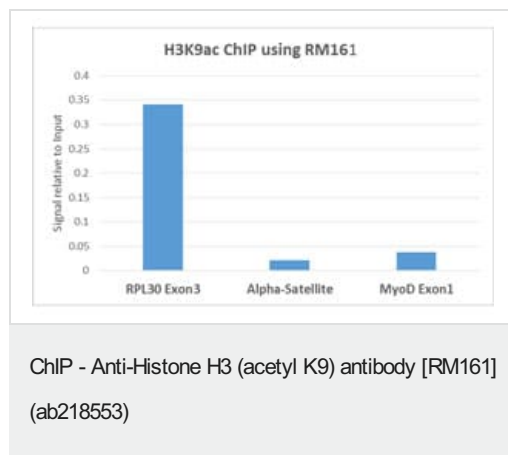
heterochromatin. Phosphorylation at Ser-11 (H3S10ph) is also an essential regulatory mechanism for neoplastic cell transformation. Phosphorylated at Ser-29 (H3S28ph) by MLTK isoform 1, RPS6KA5 or AURKB during mitosis or upon ultraviolet B irradiation. Phosphorylation at Thr-7 (H3T6ph) by PRKCBB is a 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.

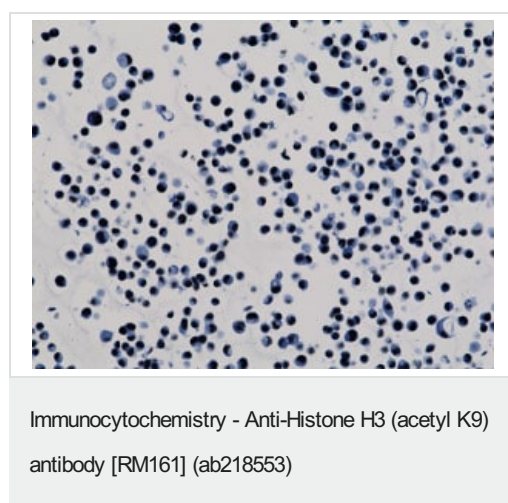
## Cellular localization

Nucleus. Chromosome.

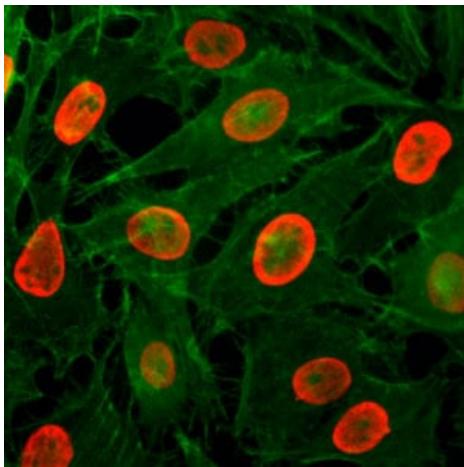
## Images



ChIP performed on HeLa cells using ab218553 at 5ug. Real-time PCR was performed using primers specific to the gene indicated.

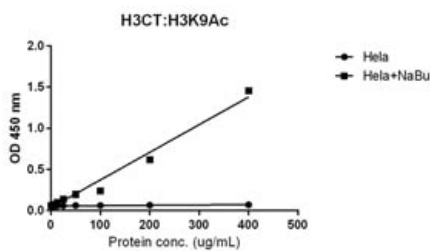


Immunocytochemical analysis of HepG2 cells labeling Histone H3 (acetyl K9) using ab218553 at 1 µg/mL.



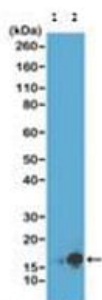
Immunocytochemistry/ Immunofluorescence - Anti-Histone H3 (acetyl K9) antibody [RM161] (ab218553)

Immunocytochemistry analysis of HeLa cells treated with sodium butyrate labeling Histone H3 (acetyl K9) using ab218553 at 2  $\mu\text{g/mL}$  (red). Actin filaments have been labeled with fluorescein phalloidin (green).



ELISA - Anti-Histone H3 (acetyl K9) antibody [RM161] (ab218553)

Sandwich ELISA against acetylated histone H3 at Lys 9 using HeLa whole cell lysate, treated or untreated with Sodium Butyrate. Using ab218553 at 1  $\mu\text{g/mL}$  as the capture antibody and biotinylated anti-H3K9ac as the detection antibody.

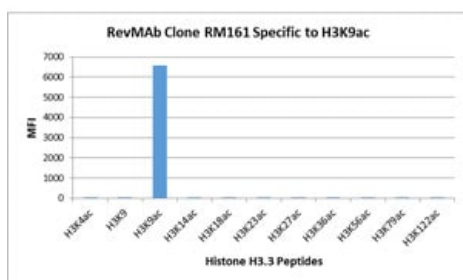


Western blot - Anti-Histone H3 (acetyl K9) antibody [RM161] (ab218553)

**All lanes :** Anti-Histone H3 (acetyl K9) antibody [RM161] (ab218553) at 0.25  $\mu\text{g/ml}$

**Lane 1 :** HeLa cells untreated

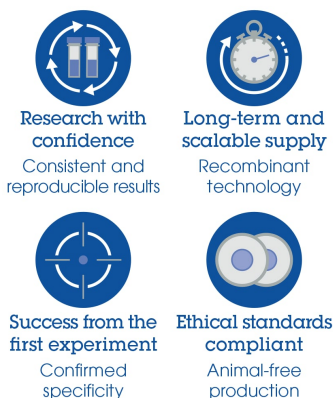
**Lane 2 :** HeLa cells treated with sodium butyrate



ELISA - Anti-Histone H3 (acetyl K9) antibody  
[RM161] (ab218553)

ab218553 specifically reacts to Histone H3 acetylated at Lysine 9 (K9ac). No cross reactivity with acetylated Lysine 4 (K4ac), Lysine 14 (K14ac), Lysine 18 (K18ac), Lysine 23 (K23ac), Lysine 27 (K27ac), Lysine 36 (K36ac), Lysine 56 (K56ac), Lysine 79 (K79ac), or Lysine 122 (K122) in histone H3.

### Why choose a recombinant antibody?



Anti-Histone H3 (acetyl K9) antibody [RM161]  
(ab218553)

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