abcam

Product datasheet

# Anti-Histone H3 (acetyl K9 + K14 + K18 + K23 + K27) antibody ab47915

6 Abreviews 113 References 4 Images

## Overview

| | |
|---|---|
| **Product name** | Anti-Histone H3 (acetyl K9 + K14 + K18 + K23 + K27) antibody |
| **Description** | Rabbit polyclonal to Histone H3 (acetyl K9 + K14 + K18 + K23 + K27) |
| **Host species** | Rabbit |
| **Specificity** | This antibody recognizes histone H3 acetylated at lysines 9, 14, 18, 23 or 27 as confirmed by dot blot with non-modified histone H3 peptide or peptides No reaction with non-modified histone H3 peptide as tested by dot blot. |
| **Tested applications** | **Suitable for:** ChIP, Dot blot, WB |
| **Species reactivity** | **Reacts with:** Human<br>**Predicted to work with:** Mouse |
| **Immunogen** | Synthetic peptide corresponding to Human Histone H3 (N terminal) (acetyl K9 + K14 + K18 + K23 + K27). |
| **General notes** | Learn about ChIP assay kits, other ChIP antibodies, protocols and more in the **ChIP assay guide**.<br><br>The Life Science industry has been in the grips of a reproducibility crisis for a number of years. Abcam is leading the way in addressing this with our range of recombinant monoclonal antibodies and knockout edited cell lines for gold-standard validation. Please check that this product meets your needs before purchasing.<br><br>If you have any questions, special requirements or concerns, please send us an inquiry and/or contact our Support team ahead of purchase. Recommended alternatives for this product can be found below, along with publications, customer reviews and Q&As |

## 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. Avoid freeze / thaw cycle. |
| **Storage buffer** | Preservative: 0.035% Sodium azide<br>Constituents: Whole serum, 30% Glycerol |
| **Purity** | Whole antiserum |

| | |
|---|---|
| **Clonality** | Polyclonal |
| **Isotype** | IgG |

## Applications

**The Abpromise guarantee** Our **Abpromise guarantee** covers the use of ab47915 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 |
|---|---|---|
| **ChIP** | ★★★★★ (1) | Use at an assay dependent concentration. |
| **Dot blot** | | 1/1000. |
| **WB** | ★★★★☆ (4) | 1/500 - 1/5000. Detects a band of approximately 17 kDa (predicted molecular weight: 15 kDa). |

## 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.

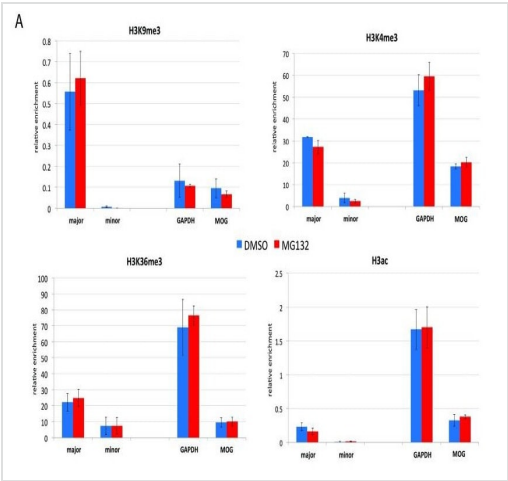
**Developmental stage** Expressed during S phase, then expression strongly decreases as cell division slows down during the process of differentiation.

**Post-translational modifications** 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).
Citrullination at Arg-9 (H3R8ci) and/or Arg-18 (H3R17ci) by PADI4 impairs methylation and represses transcription.
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.
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.
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. 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 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

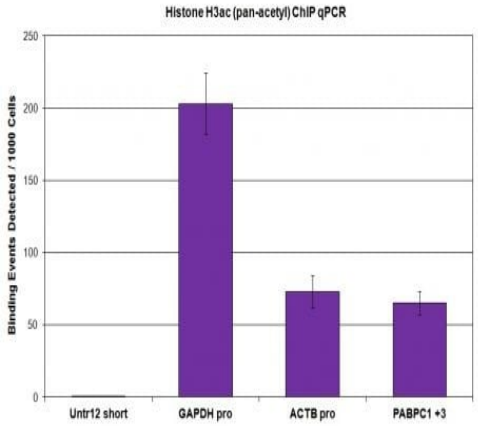



ChIP - Anti-Histone H3 (acetyl K9 + K14 + K18 + K23 + K27) antibody (ab47915)

Natisvili et al PLoS One. 2016 Nov 2;11(11):e0165873. doi: 10.1371/journal.pone.0165873. eCollection 2016. Fig 4. Reproduced under the Creative Commons license http://creativecommons.org/licenses/by/4.0/

**HP1α delocalises from chromocentres upon proteasome inhibition whereas the histone modifications remain unaffected.**

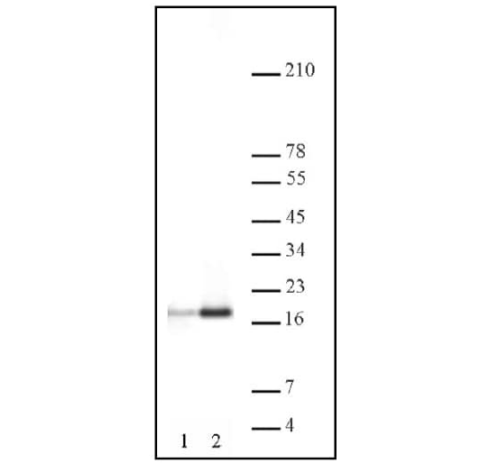
**(A) Proteasome inhibition does not affect canonical histone modifications on major and minor satellite repeats.** NIH/3T3 (Mouse embryo fibroblast cell line) cells were treated with 20μM MG132 for 4h followed by ChIP–qPCR analysis using antibodies against repressive mark H3K9me3 and activating marks H3K4me3, H3K36me3, and H3ac (ab47915). Data is shown as relative enrichment to H3 with background subtraction. The y-axis scale was adjusted depending on the signal obtained with different antibodies. Error bars = SEM of 3 biological replicates.




ChIP - Anti-Histone H3 (acetyl K9 + K14 + K18 + K23 + K27) antibody (ab47915)

ChIP was performed using a high sensitivity kit with 5 µg of chromatin from HeLa (Human epithelial cell line from cervix adenocarcinoma) cells and 10 µL of Anti-Histone H3 (acetyl K9 + K14 + K18 + K23 + K27) antibody ab47915.

ChIP DNA was used in qPCR with the negative control primer pairs or gene-specific primer pairs as indicated. Data are presented as binding events detected per 1000 cells using a normalization scheme which accounts for primer efficiency and the amount of chromatin used in the ChIP reaction.




Western blot - Anti-Histone H3 (acetyl K9 + K14 + K18 + K23 + K27) antibody (ab47915)

**All lanes :** Anti-Histone H3 (acetyl K9 + K14 + K18 + K23 + K27) antibody (ab47915) at 1/2000 dilution

**Lane 1 :** HeLa (Human epithelial cell line from cervix adenocarcinoma) cells, no treatment
**Lane 2 :** HeLa cells, treatment with sodium butyrate

Lysates/proteins at 10 µg per lane.

**Predicted band size:** 15 kDa
**Observed band size:** 17 kDa


Dot Blot - Anti-Histone H3 (acetyl K9 + K14 + K18 + K23 + K27) antibody (ab47915)

**ab47915 tested by dot blot analysis.**
Dot blot analysis was used to confirm the specificity of ab47915. Acetylated peptides corresponding to the immunogen and related peptides were spotted onto PVDF and probed with the antibody at a dilution of 1:1,000. The amount of peptide (picomoles) spotted is indicated next to the row.
Lane 1: acetyl-Lys9 peptide. Lane 2: unmodified Lys9 peptide.
Lane 3: acetyl-Lys14 peptide. Lane 4: unmodified Lys14 peptide.
Lane 5: acetyl-Lys18 peptide. Lane 6: unmodified Lys18 peptide.
Lane 7: acetyl-Lys23 peptide. Lane 8: unmodified Lys23 peptide.
Lane 9: acetyl-Lys27 peptide. Lane 10: unmodified Lys27 peptide.

**Please note:** All products are "FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES"

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