

Product datasheet

Anti-Histone H3 (mono methyl K18) antibody ab272153

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Overview

Product name	Anti-Histone H3 (mono methyl K18) antibody
Description	Rabbit polyclonal to Histone H3 (mono methyl K18)
Host species	Rabbit
Tested applications	Suitable for: WB, ICC/IF, Dot blot
Species reactivity	Reacts with: Mouse, Human
Immunogen	Recombinant fragment corresponding to Human Histone H3 (mono methyl K18). Database link: P68431
Positive control	WB: NIH/3T3 histone preparation; HeLa histone preparation. ICC/IF: HeLa cells.
General notes	<p>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.</p> <p>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</p>

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: 0.01% Sodium azide Constituents: 0.42% Potassium phosphate, 0.87% Sodium chloride, 30% Glycerol (glycerin, glycerine)
Purity	Affinity purified
Clonality	Polyclonal
Isotype	IgG

Applications

The Abpromise guarantee

Our **Abpromise guarantee** covers the use of ab272153 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		1/500. Predicted molecular weight: 15 kDa.
ICC/IF		1/50 - 1/100.
Dot blot		1/1000.

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 PAD4 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)

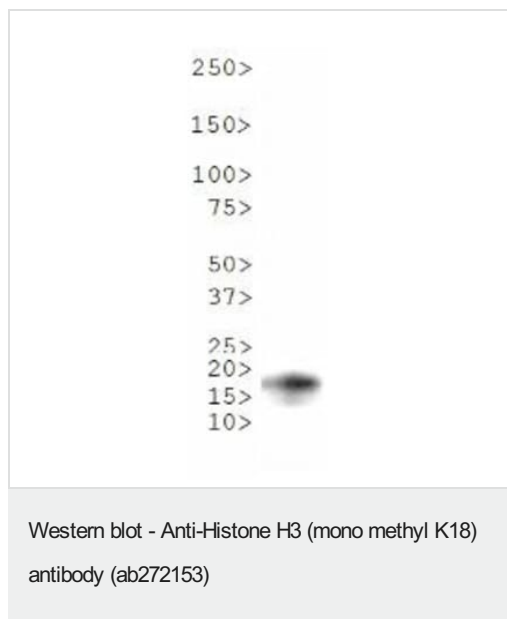
by AURKB mediates the dissociation of HP1 proteins (CBX1, CBX3 and CBX5) from heterochromatin. Phosphorylation at Ser-11 (H3S10ph) is also an essential regulatory mechanism for neoplastic cell transformation. Phosphorylated at Ser-29 (H3S28ph) by MLTK isoform 1, RPS6KA5 or AURKB during mitosis or upon 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



Anti-Histone H3 (mono methyl K18) antibody (ab272153) at 1/500 dilution + NIH/3T3 histone preparation at 30 µg

Secondary

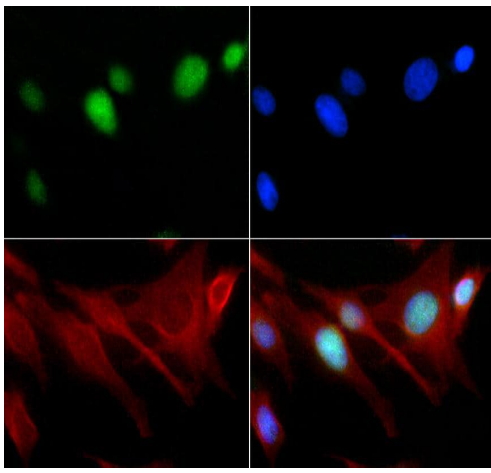
IRDye800™ rabbit at 1/10000 dilution

Predicted band size: 15 kDa

Primary incubation overnight at 4°C.

Block: 5% BLOTTO overnight at 4°C.

Predicted/Observed size: ~15 kDa.



Immunocytochemistry/ Immunofluorescence - Anti-Histone H3 (mono methyl K18) antibody (ab272153)

Immunofluorescent analysis of 0.5% PFA-fixed HeLa cells labeling Histone H3 (mono methyl K18) using ab272153 at 1/50 dilution for 1 hour at room temperature (Green). FITC secondary antibody at 1:10,000 for 45 minutes at room temperature. The nuclear counter stain is DAPI (Blue). Phalloidin staining is shown in red.



Western blot - Anti-Histone H3 (mono methyl K18) antibody (ab272153)

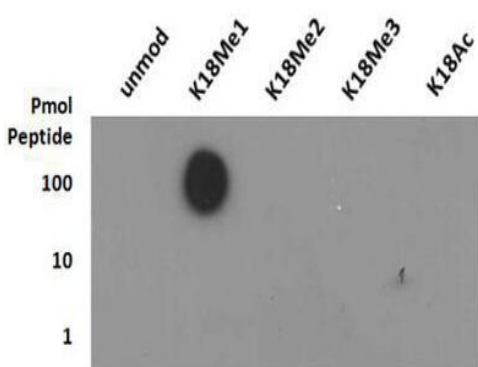
Anti-Histone H3 (mono methyl K18) antibody (ab272153) at 1/500 dilution + HeLa histone preparation at 30 μ g

Predicted band size: 15 kDa

Primary incubation overnight at 4°C.

Block: 5% BLOTTO overnight at 4°C.

Predicted/Observed size: ~15 kDa.



Dot Blot - Anti-Histone H3 (mono methyl K18) antibody (ab272153)

Dot Blot analysis of Histone H3 (mono methyl K18) using ab272153 at 1/1000 dilution.

Lane 1: unmodified.

Lane 2: K18Me1.

Lane 3: K18Me2.

Lane 4: K18Me3.

Lane 5: K18ac.

Load: 1, 10, and 100 picomoles of peptide.

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