abcam

Product datasheet

Anti-Histone H3 (acetyl K9) antibody [AH3-120] - ChIP Grade ab12179

★★★★★ 8 Abreviews 26 References 5 Images

Overview

Product name	Anti-Histone H3 (acetyl K9) antibody [AH3-120] - ChIP Grade
Description	Mouse monoclonal [AH3-120] to Histone H3 (acetyl K9) - ChIP Grade
Tested applications	**Suitable for:** Flow Cyt, IHC-P, ChIP, WB, ELISA, ICC/IF
Species reactivity	**Reacts with:** Mouse, Human, Arabidopsis thaliana, Drosophila melanogaster, Rice **Predicted to work with:** Rat, Chicken, Cow, Xenopus laevis, Caenorhabditis elegans, a wide range of other species
Immunogen	Synthetic peptide corresponding to Histone H3 aa 7-20 (N terminal) (acetyl K9). Sequence: ARKSTGGKAPRKQL Run BLAST with Run BLAST with
Positive control	IHC-P: Human normal colon FFPE tissue sections.
General notes	Storage in frost-free freezers is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

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: 15mM Sodium Azide Constituents: 0.01M PBS, pH 7.4
Purity	Immunogen affinity purified
Clonality	Monoclonal
Clone number	AH3-120
Myeloma	NS1
Isotype	IgG1

Applications

Our Abpromise guarantee covers the use of **ab12179** 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
Flow Cyt		Use at an assay dependent concentration. PubMed: 19584087 ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.
IHC-P		Use a concentration of 10 µg/ml. Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.
ChIP	★★★★★	Use 5-10 µg for 25 µg of chromatin.
WB	★★★★☆	Use a concentration of 1 - 2 µg/ml. Detects a band of approximately 17 kDa.
ELISA		Use at an assay dependent concentration.
ICC/IF	★★★★★	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.

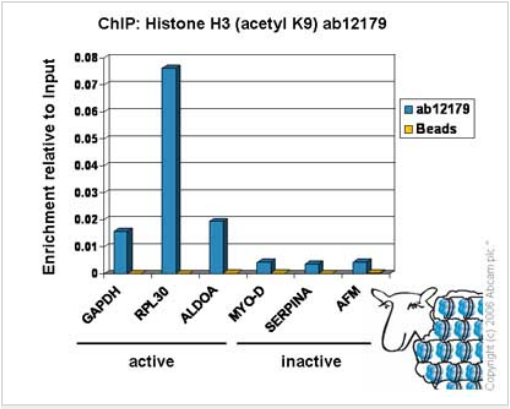
Post-translational modifications

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 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.

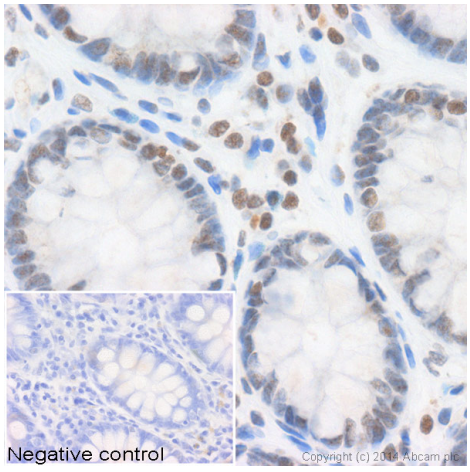
Cellular localization Nucleus. Chromosome.

Images



ChIP - Anti-Histone H3 (acetyl K9) antibody [AH3-120] - ChIP Grade (ab12179)

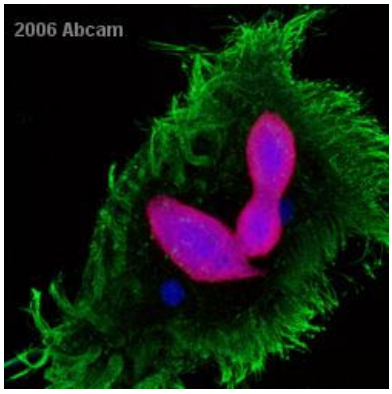
Chromatin was prepared from Hela cells according to the Abcam X-ChIP protocol. Cells were fixed with formaldehyde for 10min. The ChIP was performed with 25µg of chromatin, 5µg of ab12179 (blue), and 20µl of Protein A/G sepharose beads. No antibody was added to the beads control (yellow). The immunoprecipitated DNA was quantified by real time PCR (Taqman approach). Primers and probes are located in the first kb of the transcribed region.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Histone H3 (acetyl K9) [AH3-120] antibody - ChIP Grade (ab12179)

IHC image of ab12179 staining Histone H3 (acetyl K9) in human colon formalin fixed paraffin embedded tissue sections, performed on a Leica Bond. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH6, epitope retrieval solution 1) for 20 mins. The section was then incubated with ab12179, 10µg/ml, for 15 mins at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX. No primary antibody was used in the negative control (shown on the inset).

For other IHC staining systems (automated and non-automated) customers should optimize variable parameters such as antigen retrieval conditions, primary antibody concentration and antibody incubation times.

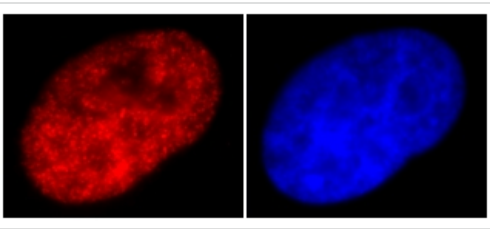


Immunocytochemistry/ Immunofluorescence - Anti-Histone H3 (acetyl K9) antibody [AH3-120] - ChIP Grade (ab12179)

This image is courtesy of an Abreview submitted by Dr Jan Postberg

ab12179 at a 1/1000 dilution staining Stylonychia lemnae (single cell organism, transcriptionally active macronucleus) by ICC/IF. The cells were paraformaldehyde fixed and incubated with the antibody for 12 hours. An Alexa Fluor ® 488 conjugated goat anti-mouse IgG antibody was used as the secondary.

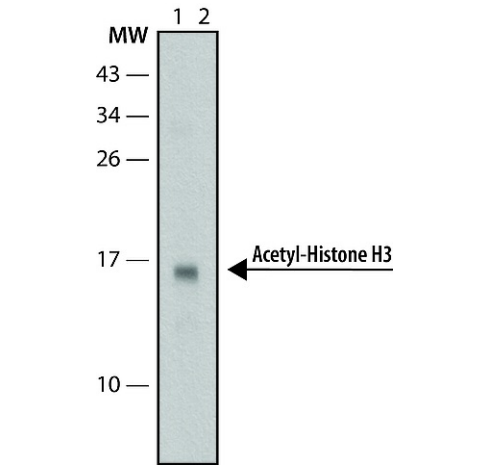
In the image Histone H3 (acetyl K9) staining is red and is found in macronuclei only. Micronuclei remain unstained and are shown in blue (nucleic acid counterstain). Alpha tubulin is also stained (green).



Immunocytochemistry - Anti-Histone H3 (acetyl K9) antibody [AH3-120] - ChIP Grade (ab12179)

This image is courtesy of Darin McDonald, Cross Cancer Institute

SK-N-SH cells fixed in 4% paraformaldehyde, permeabilized in 0.5% Triton X-100 and incubated for 1 hour with ab12179 (1/1000 dilution). ab12179 staining is localized to the nucleus (red). The cells were counterstained with DAPI (blue). 100x magnification.



Western blot - Anti-Histone H3 (acetyl K9) antibody [AH3-120] - ChIP Grade (ab12179)

All lanes : Anti-Histone H3 (acetyl K9) antibody [AH3-120] - ChIP Grade (ab12179) at 1 µg/ml

Lane 1 : Histone fraction isolated from HeLa cells

Lane 2 : Histone fraction isolated from HeLa cells

Secondary

Goat Anti-Mouse IgG-Peroxidase

Our Abpromise to you: Quality guaranteed and expert technical support

- Replacement or refund for products not performing as stated on the datasheet
- Valid for 12 months from date of delivery
- Response to your inquiry within 24 hours
- We provide support in Chinese, English, French, German, Japanese and Spanish
- Extensive multi-media technical resources to help you
- We investigate all quality concerns to ensure our products perform to the highest standards

If the product does not perform as described on this datasheet, we will offer a refund or replacement. For full details of the Abpromise, please visit http://www.abcam.com/abpromise or contact our technical team.

Terms and conditions

- Guarantee only valid for products bought direct from Abcam or one of our authorized distributors