

Product datasheet

Anti-Histone H3 (mono methyl K79) antibody - ChIP Grade ab2886

★★★★☆ 10 Abreviews 39 References 7 Images

Overview

Product name	Anti-Histone H3 (mono methyl K79) antibody - ChIP Grade
Description	Rabbit polyclonal to Histone H3 (mono methyl K79) - ChIP Grade
Host species	Rabbit
Specificity	Reacts with Mono-methyl K79 of histone H3. Slight cross-reactivity to di-methyl K79.
Tested applications	Suitable for: ChIP, ICC, IP, Immunodiffusion, ICC/IF, WB, PepArr
Species reactivity	Reacts with: Mouse, Rat, Human Predicted to work with: Saccharomyces cerevisiae, a wide range of other species, Mammal
Immunogen	Synthetic peptide within Human Histone H3 aa 50 to the C-terminus (mono methyl K79) conjugated to Keyhole Limpet Haemocyanin (KLH). The exact sequence is proprietary. (Peptide available as ab4555)
Positive control	This antibody gave a positive signal in the following lysates: calf thymus histone; HeLa; NIH3T3; rat testis tissue.

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 or -80°C. Avoid freeze / thaw cycle.
Storage buffer	pH: 7.40 Preservative: 0.02% Sodium azide Constituent: PBS
Purity	Immunogen affinity purified
Clonality	Polyclonal
Isotype	IgG

Batches of this product that have a concentration < 1mg/ml may have BSA added as a stabilising agent. If you would like information about the formulation of a specific lot, please contact our scientific support team who will be happy to help.

Applications

Our [Abpromise guarantee](#) covers the use of **ab2886** 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	★★★★★	Use 2µg for 10 ⁶ cells.
ICC		Use at an assay dependent concentration.
IP		Use at an assay dependent concentration.
Immunodiffusion		Use at an assay dependent concentration.
ICC/IF	★★★★☆	Use at an assay dependent concentration. PubMed: 18787701
WB	★★★★☆	1/1 - 1/500. Detects a band of approximately 17 kDa.
PepArr		Use a concentration of 0.2 - 0.02 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

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.

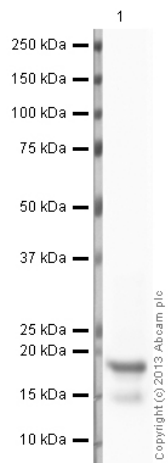
Methylation at Lys-80 (H3K79me) is associated with DNA double-strand break (DSB) responses and is a specific target for TP53BP1. Methylation at Lys-10 (H3K9me) and Lys-28 (H3K27me) are linked to gene repression. Methylation at Lys-10 (H3K9me) is a specific target for HP1 proteins (CBX1, CBX3 and CBX5) 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



Western blot - Anti-Histone H3 (mono methyl K79) antibody - ChIP Grade (ab2886)

Anti-Histone H3 (mono methyl K79) antibody - ChIP Grade (ab2886) at 1 µg/ml + Calf Thymus Histone Preparation Nuclear Lysate at 0.5 µg

Secondary

Human NFIB / NF1B2 peptide (ab95051) at 1/10000 dilution

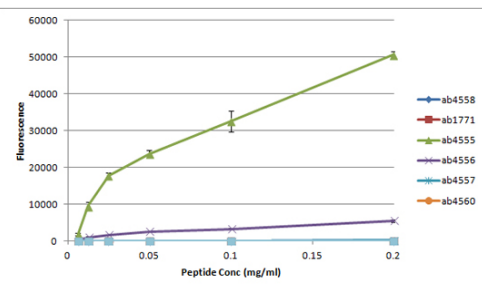
Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 15.4 kDa

Additional bands at: 17 kDa. We are unsure as to the identity of these extra bands.

Exposure time: 3 minutes



Peptide Array - Anti-Histone H3 (mono methyl K79) antibody - ChIP Grade (ab2886)

All batches of ab2886 are tested in Peptide Array against peptides to different Histone H3 modifications. Six dilutions of each peptide are printed on to the Peptide Array in triplicate and results are averaged before being plotted on to a graph. Results show strong binding to Histone H3 - mono methyl K79 peptide (ab4555), indicating that this antibody specifically recognises the Histone H3 - mono methyl K79 modification.

ab4558 - Histone H3 - unmodified

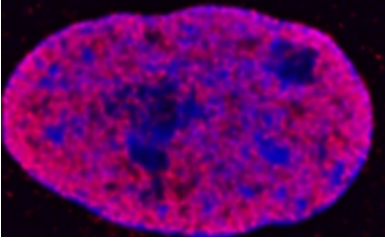
ab1771 - Histone H3 - di methyl K9

ab4555 - Histone H3 - mono methyl K79

ab4556 - Histone H3 - di methyl K79

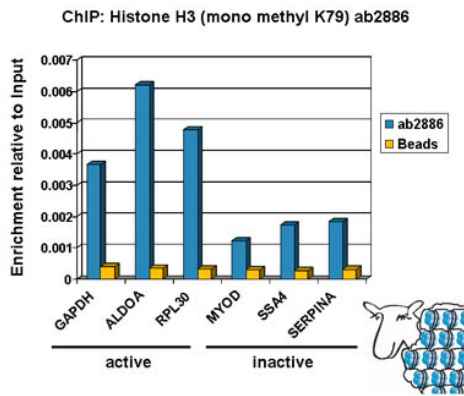
ab4557 - Histone H3 - tri methyl K79

ab4560 - Histone H4 - di methyl K79



Immunocytochemistry/ Immunofluorescence - Anti-Histone H3 (mono methyl K79) antibody - ChIP Grade (ab2886)

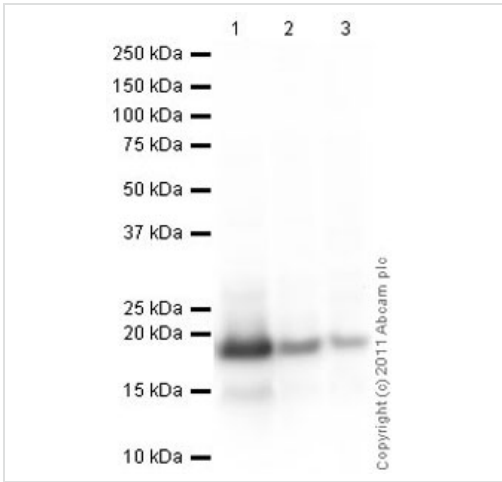
This image was kindly supplied as part of the review submitted by Dr Geza Fejes-Toth.



Every new batch of this antibody is tested at Abcam in ChIP.

ChIP - Anti-Histone H3 (mono methyl K79) antibody - ChIP Grade (ab2886)

Chromatin was prepared from U2OS cells according to the Abcam X-ChIP protocol. Cells were fixed with formaldehyde for 10 min. The ChIP was performed with 25 µg of chromatin, 2 µg of ab2886 (blue), and 20 µl of protein A/G sepharose beads. No antibody was added to the beads control (yellow). The immunoprecipitated DNA was quantified by real time PCR. Primers and probes are located in the first kb of the transcribed region.



Western blot - Anti-Histone H3 (mono methyl K79) antibody - ChIP Grade (ab2886)

All lanes : Anti-Histone H3 (mono methyl K79) antibody - ChIP Grade (ab2886) at 1/300 dilution

Lane 1 : HeLa (Human epithelial carcinoma cell line) Whole Cell Lysate

Lane 2 : NIH 3T3 (Mouse embryonic fibroblast cell line) Whole Cell Lysate

Lane 3 : Testis (Rat) Tissue Lysate

Lysates/proteins at 10 µg per lane.

Secondary

All lanes : Goat polyclonal Secondary Antibody to Rabbit IgG - H&L (HRP), pre-adsorbed at 1/5000 dilution

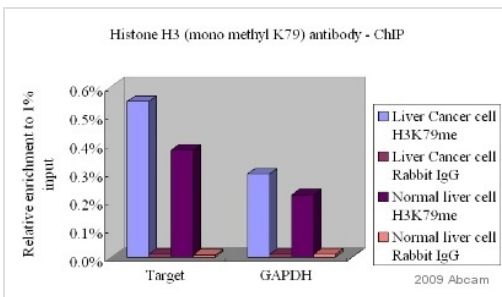
Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 15.4 kDa

Observed band size: 18 kDa

Exposure time: 4 minutes

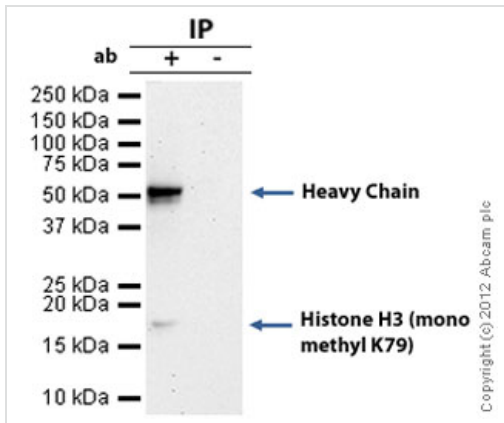


ChIP - Anti-Histone H3 (mono methyl K79) antibody - ChIP Grade (ab2886)

This image is a courtesy of Anonymous Abreview

Chromatin was prepared from whole cell lysate of normal rat liver and liver cancer cells.

The cross-linking (X-ChIP) technique was used, crosslinking was performed for 15 minutes in formaldehyde. 5 µg of the primary antibody was used in 1/100 dilution and it was incubated with the sample for 16 hours at 4°C in a commercially available ChIP dilution buffer. The immunoprecipitated DNA was quantified by real time PCR. ChIP results show that the Histone H3 (mono methyl K79) and GAPDH genes are expressed in higher levels in liver cancer cells than in normal liver cells.



Immunoprecipitation - Anti-Histone H3 (mono methyl K79) antibody - ChIP Grade (ab2886)

Histone H3 (mono methyl K79) was immunoprecipitated using 0.5mg Hela whole cell extract, 5µg of Rabbit polyclonal to Histone H3 (mono methyl K79) and 50µl of protein G magnetic beads (+). No antibody was added to the control (-).

The antibody was incubated under agitation with Protein G beads for 10min, Hela whole cell extract lysate diluted in RIPA buffer was added to each sample and incubated for a further 10min under agitation.

Proteins were eluted by addition of 40µl SDS loading buffer and incubated for 10min at 70°C; 10µl of each sample was separated on a SDS PAGE gel, transferred to a nitrocellulose membrane, blocked with 5% BSA and probed with ab2886.

Secondary: Clean blot (HRP conjugate) at 1/1000 dilution.

Band: 18kDa: Histone H3 (mono methyl K79).

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