abcam

Product datasheet

Anti-Histone H3 (symmetric di methyl R2) antibody ab194684

1 References 8 Images

Overview

Product name	Anti-Histone H3 (symmetric di methyl R2) antibody
Description	Rabbit polyclonal to Histone H3 (symmetric di methyl R2)
Host species	Rabbit
Tested applications	**Suitable for:** WB, Dot blot, ICC/IF, IP, ChIP, CHIPseq, IHC-P
Species reactivity	**Reacts with:** Mouse, Rat, Human **Predicted to work with:** a wide range of other species
Immunogen	Synthetic peptide corresponding to Human Histone H3 (symmetric di methyl R2). A synthetic methylated peptide corresponding to residues surrounding R2 of human histone H3 Database link: Q16695
Positive control	WB: HeLa cell lysate; IHC-P: Human stomach, rat liver, mouse brain; ICC/ IF: C6, NIH-3T3 and U-2 OS cells.

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 long term. Avoid freeze / thaw cycle.
Storage buffer	pH: 7.3 Preservative: 0.02% Sodium azide Constituents: 49% PBS, 50% Glycerol
Purity	Immunogen affinity purified
Clonality	Polyclonal
Isotype	IgG

Applications

Our Abpromise guarantee covers the use of **ab194684** 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 - 1/2000. Predicted molecular weight: 15 kDa.
Dot blot		Use at an assay dependent concentration.
ICC/IF		1/50 - 1/200.
IP		1/50 - 1/200.
ChIP		1/20 - 1/100.
CHIPseq		1/20 - 1/100.
IHC-P		1/50 - 1/200.

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.

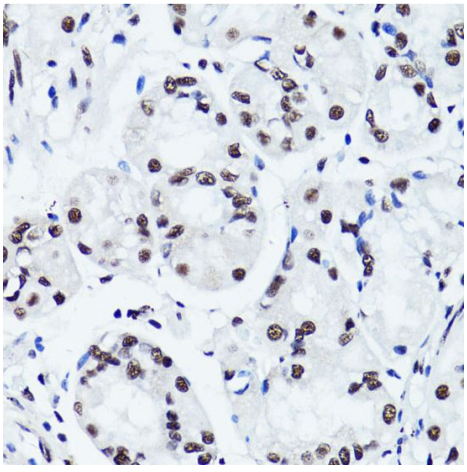
Post-translational modifications

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.

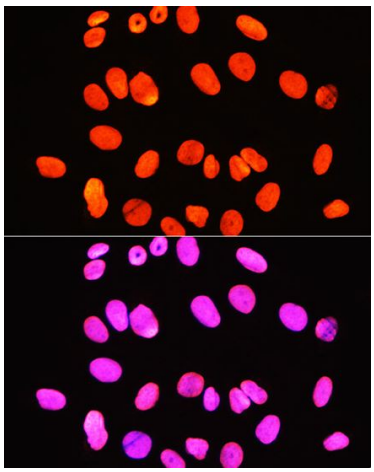
Cellular localization Nucleus. Chromosome.

Images



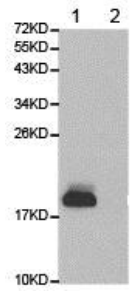
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Histone H3 (symmetric di methyl R2) antibody (ab194684)

Paraffin-embedded human stomach tissue stained for Histone H3 (symmetric di methyl R2) using ab194684 at 1/100 dilution in immunohistochemical analysis.



Immunocytochemistry/ Immunofluorescence - Anti-Histone H3 (symmetric di methyl R2) antibody (ab194684)

Immunofluorescence staining of U-2 OS cells stained for Histone H3 (symmetric di methyl R2) with ab194684 at 1/100 dilution. Nuclei are labeled with DAPI (Blue).



Western blot - Anti-Histone H3 (symmetric di methyl R2) antibody (ab194684)

All lanes : Anti-Histone H3 (symmetric di methyl R2) antibody (ab194684)

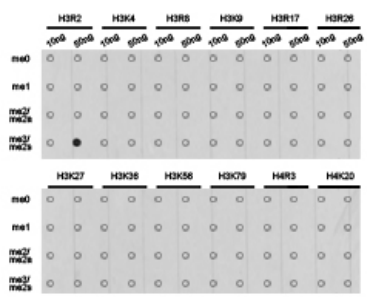
Lane 1 : HeLa cell lysate
Lane 2 : Histone H3 protein

Lysates/proteins at 25 µg per lane.

Secondary
All lanes : HRP Goat Anti-Rabbit IgG (H+L)

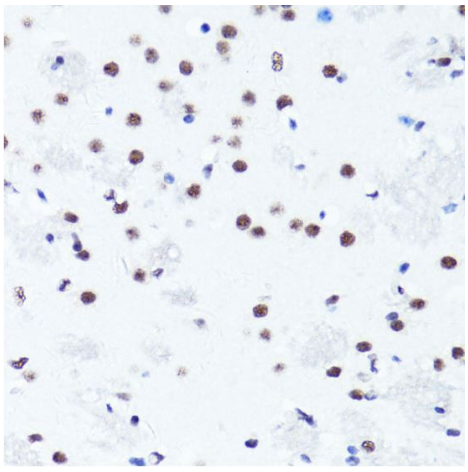
Predicted band size: 15 kDa

Blocking buffer: 3% nonfat dry milk in TBST.



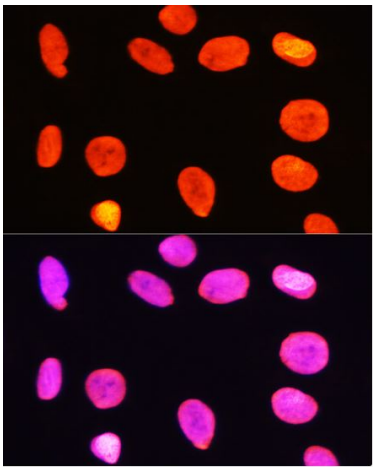
Dot Blot - Anti-Histone H3 (symmetric di methyl R2) antibody (ab194684)

Dot-blot analysis of methylation peptides using ab194684



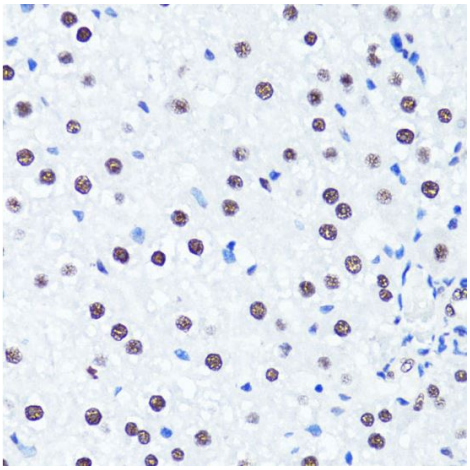
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Histone H3 (symmetric di methyl R2) antibody (ab194684)

Paraffin-embedded mouse brain tissue stained for Histone H3 (symmetric di methyl R2) using ab194684 at 1/100 dilution in immunohistochemical analysis.



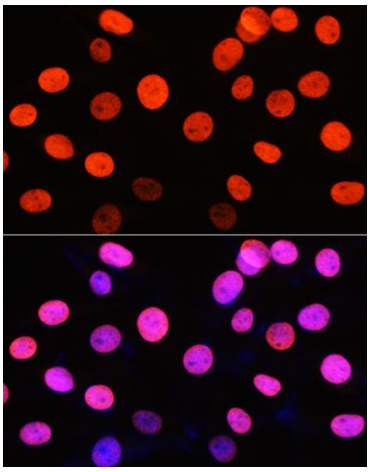
Immunocytochemistry/ Immunofluorescence - Anti-Histone H3 (symmetric di methyl R2) antibody (ab194684)

Immunofluorescence staining of C6 cells stained for Histone H3 (symmetric di methyl R2) with ab194684 at 1/100 dilution. Nuclei are labeled with DAPI (Blue).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Histone H3 (symmetric di methyl R2) antibody (ab194684)

Paraffin-embedded rat liver tissue stained for Histone H3 (symmetric di methyl R2) using ab194684 at 1/100 dilution in immunohistochemical analysis.



Immunocytochemistry/ Immunofluorescence - Anti-Histone H3 (symmetric di methyl R2) antibody (ab194684)

Immunofluorescence staining of HIH-3T3 cells stained for Histone H3 (symmetric di methyl R2) with ab194684 at 1/100 dilution. Nuclei are labeled with DAPI (Blue).

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