**Product datasheet**

**Anti-Histone H3 (tri methyl K9, phospho S10) antibody - ChIP Grade ab5819**

1 Abreviews 9 References 4 Images

**Overview**

<table>
<thead>
<tr>
<th>Product name</th>
<th>Anti-Histone H3 (tri methyl K9, phospho S10) antibody - ChIP Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Rabbit polyclonal to Histone H3 (tri methyl K9, phospho S10) - ChIP Grade</td>
</tr>
<tr>
<td>Host species</td>
<td>Rabbit</td>
</tr>
<tr>
<td>Tested applications</td>
<td>Suitable for: IHC-P, ChIP, WB, ICC/IF, ICC</td>
</tr>
<tr>
<td>Species reactivity</td>
<td>Reacts with: Mouse, Human</td>
</tr>
<tr>
<td>Immunogen</td>
<td>Synthetic peptide corresponding to Human Histone H3 aa 1-100 (methyl K9, phospho S10) conjugated to keyhole limpet haemocyanin. (Peptide available as ab15644)</td>
</tr>
<tr>
<td>Positive control</td>
<td>HeLa Histone Preparation; Colcemid-treated HeLa histone Preparation; Hela whole cell extract</td>
</tr>
</tbody>
</table>

**Properties**

<table>
<thead>
<tr>
<th>Form</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage instructions</td>
<td>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.</td>
</tr>
<tr>
<td>Storage buffer</td>
<td>pH: 7.40</td>
</tr>
<tr>
<td></td>
<td>Preservative: 0.02% Sodium azide</td>
</tr>
<tr>
<td></td>
<td>Constituent: PBS</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Purity</th>
<th>Immunogen affinity purified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clonality</td>
<td>Polyclonal</td>
</tr>
<tr>
<td>Isotype</td>
<td>IgG</td>
</tr>
</tbody>
</table>

**Applications**

Our Abpromise guarantee covers the use of ab5819 in the following tested applications.
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) and Lys-80 (H3K79me) are linked to gene repression and H3K4me is linked to gene activation. Methylation at Lys-5 (H3K4me) and Lys-80 (H3K79me) are 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-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’.

Application | Abreviews | Notes |
--- | --- | --- |
IHC-P | Use a concentration of 5 µg/ml. Perform heat mediated antigen retrieval before commencing with IHC staining protocol. |
ChIP | Use at an assay dependent concentration. |
WB | 1/500 - 1/1000. Detects a band of approximately 22 kDa (predicted molecular weight: 17 kDa). Can be blocked with Human Histone H3 (tri methyl K9 or phospho S10) peptide (ab15644). |
ICC/IF | Use at an assay dependent concentration. |

Target
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 PRKCB2 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**

Rabbit polyclonal to Histone H3 (phospho S10, tri methyl K9) - ab5819, on histone preparations from HeLa cells. Primary antibody used at 1/500.

Lanes 1, 3, 5, 7, 9 - control HeLa histones (0.5ug/lane)
Lanes 2, 4, 6, 8, 10 - Colcemid-treated HeLa histones (0.5ug/lane)

All blocking peptides are 1ug/lane

Lanes 1 and 2: ab5819
Lanes 3 and 4: ab5819 + Histone H3 (Tri Me K9, phospho S10) peptide - ab15644
Lanes 5 and 6: ab5819 + Histone H3 peptide (unmodified) - ab7228
Lanes 7 and 8: ab5819 + Histone H3 (phospho S10) peptide - ab11477
Lanes 9 and 10: ab5819 + Histone H3 (tri methyl K9) peptide - ab1773

Secondary antibody - Goat polyclonal to rabbit IgG (HRP) - ab6721 1/5000.

ab5819 is specific for Histone H3 phosphorylated at residue S10 and tri methylated at residue K9. The activity of the antibody is blocked by the addition of the immunizing peptide, ab15644 (lanes 3 and 4).
Immunocytochemistry/ Immunofluorescence - Anti-Histone H3 (tri methyl K9, phospho S10) antibody - ChIP Grade (ab5819)

This image is courtesy of Darin McDonald, Hendzel Laboratory

SKN cells stained with ab5819 (green) at a dilution of 1/2000. The cells were fixed in paraformaldehyde for 10 minutes prior to incubation with ab5819. The DNA is stained with DAPI (blue). 100x magnification.

Immunocytochemistry/ Immunofluorescence - Anti-Histone H3 (tri methyl K9, phospho S10) antibody - ChIP Grade (ab5819)

ab5819 at a 1/500 dilution staining mitotic human HeLa cells by immunocytochemistry. The antibody was incubated with formaldehyde fixed cells for 1 1/2 hours and bound antibody was then detected using a Texas red conjugated goat anti-rabbit IgG.

This image is courtesy of an Anonymous Abreview submitted on 6 April 2006.

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Histone H3 (tri methyl K9, phospho S10) antibody - ChIP Grade (ab5819)

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IHC image of Histone H3 (tri methyl K9, phospho S10) staining in human breast carcinoma FFPE section, performed on a Bond™ system using the standard protocol F. 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 ab5819, 5µg/ml, for 8 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.