abcam

## Product datasheet

# Anti-KMT1A / SUV39H1 antibody [44.1] - ChIP Grade ab12405

3 Abreviews 20 References 1 Image

### Overview

| | |
|---|---|
| **Product name** | Anti-KMT1A / SUV39H1 antibody [44.1] - ChIP Grade |
| **Description** | Mouse monoclonal [44.1] to KMT1A / SUV39H1 - ChIP Grade |
| **Host species** | Mouse |
| **Tested applications** | **Suitable for:** ChIP, ELISA, IP, WB |
| **Species reactivity** | **Reacts with:** Mouse, Rat, Human |
| **Immunogen** | corresponding to KMT1A/ SUV39H1. |
| **Epitope** | Ab 12405 recognizes an epitope in the N-terminal (195 amino acids) of human and mouse SUV39H1 Histone Methyltransferase. |
| **Positive control** | HCT116, U87-MG and TE671 cell lysates. |
| **General notes** | This antibody clone is manufactured by Abcam.<br>Storage in frost-free freezers is also not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.<br>If you require this antibody in a particular buffer formulation or a particular conjugate for your experiments, please contact orders@abcam.com or you can find further information here. |

### Properties

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|---|---|
| **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** | pH: 7.40<br>Preservative: 0.02% Sodium azide<br>Constituents: PBS, 6.97% L-Arginine |
| **Purity** | Immunogen affinity purified |
| **Clonality** | Monoclonal |
| **Clone number** | 44.1 |
| **Isotype** | IgG1 |

## Applications

Our Abpromise guarantee covers the use of **ab12405** 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 at an assay dependent concentration. PubMed: 26028027 |
| ELISA | | Use at an assay dependent concentration. |
| IP | | Use at an assay dependent concentration. |
| WB | ★☆☆☆☆ | Use a concentration of 1 - 5 µg/ml. Predicted molecular weight: 48 kDa.<br>The target may be expressed at low levels and we would recommend a highly enriched nuclear extract as a sample for WB. Additionally, a signal amplification step using a biotin conjugate as a secondary antibody is preferrable over the enzyme conjugated secondary antibody method. |

## Target

**Function**

Histone methyltransferase that specifically trimethylates 'Lys-9' of histone H3 using monomethylated H3 'Lys-9' as substrate. Also weakly methylates histone H1 (in vitro). H3 'Lys-9' trimethylation represents a specific tag for epigenetic transcriptional repression by recruiting HP1 (CBX1, CBX3 and/or CBX5) proteins to methylated histones. Mainly functions in heterochromatin regions, thereby playing a central role in the establishment of constitutive heterochromatin at pericentric and telomere regions. H3 'Lys-9' trimethylation is also required to direct DNA methylation at pericentric repeats. SUV39H1 is targeted to histone H3 via its interaction with RB1 and is involved in many processes, such as repression of MYOD1-stimulated differentiation, regulation of the control switch for exiting the cell cycle and entering differentiation, repression by the PML-RARA fusion protein, BMP-induced repression, repression of switch recombination to IgA and regulation of telomere length. Component of the eNoSC (energy-dependent nucleolar silencing) complex, a complex that mediates silencing of rDNA in response to intracellular energy status and acts by recruiting histone-modifying enzymes. The eNoSC complex is able to sense the energy status of cell: upon glucose starvation, elevation of NAD(+)/NADP(+) ratio activates SIRT1, leading to histone H3 deacetylation followed by dimethylation of H3 at 'Lys-9' (H3K9me2) by SUV39H1 and the formation of silent chromatin in the rDNA locus. Recruited by the large PER complex to the E-box elements of the circadian target genes such as PER2 itself or PER1, contributes to the conversion of local chromatin to a heterochromatin-like repressive state through H3 'Lys-9' trimethylation.

**Sequence similarities**

Belongs to the class V-like SAM-binding methyltransferase superfamily. Histone-lysine methyltransferase family. Suvar3-9 subfamily.
Contains 1 chromo domain.
Contains 1 post-SET domain.
Contains 1 pre-SET domain.
Contains 1 SET domain.

**Developmental stage**

Accumulates during mitosis at centromeres during prometaphase, but dissociates from the centromere at the meta- to anaphase transition.

**Domain**

Although the SET domain contains the active site of enzymatic activity, both pre-SET and post-SET domains are required for methyltransferase activity. The SET domain also participates to stable binding to heterochromatin.

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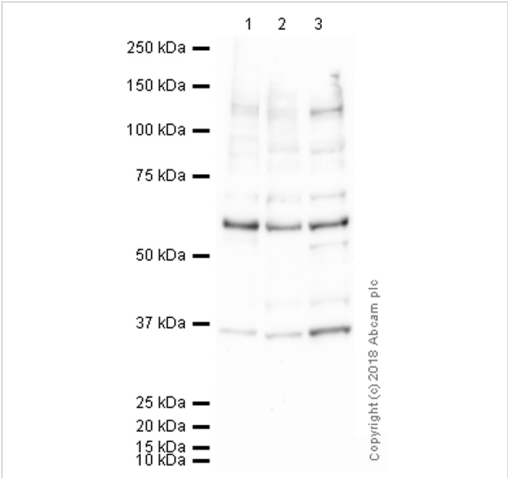
|---|---|
| | In the pre-SET domain, Cys residues bind 3 zinc ions that are arranged in a triangular cluster; some of these Cys residues contribute to the binding of two zinc ions within the cluster. |
| **Post-translational modifications** | Phosphorylated on serine residues, and to a lesser degree, on threonine residues. The phosphorylated form is stabilized by SBF1 and is less active in its transcriptional repressor function.<br>Acetylated at Lys-266, leading to inhibition of enzyme activity. SIRT1-mediated deacetylation relieves this inhibition. |
| **Cellular localization** | Nucleus. Nucleus lamina. Nucleus, nucleoplasm. Chromosome, centromere. Associates with centromeric constitutive heterochromatin. |

## Images




Western blot - Anti-KMT1A / SUV39H1 antibody [44.1] - ChIP Grade (ab12405)

**All lanes :** Anti-KMT1A / SUV39H1 antibody [44.1] - ChIP Grade (ab12405) at 5 µg

**Lane 1 :** HCT 116 (Human Colorectal Carcinoma) Whole Cell Lysate
**Lane 2 :** U-87 MG (Human glioblastoma astrocytoma) Whole Cell Lysate
**Lane 3 :** TE 671 (Human Rhabdomyosarcoma) Whole Cell Lysate

Lysates/proteins at 20 µg per lane.

**Secondary**
**All lanes :** Goat polyclonal to Mouse IgG - H&L - Pre-Adsorbed (HRP) (ab65485) at 1/5000 dilution

Developed using the ECL technique.

Performed under reducing conditions.

**Predicted band size:** 48 kDa
**Observed band size:** 60 kDa
why is the actual band size different from the predicted?
**Additional bands at:** 36 kDa. We are unsure as to the identity of these extra bands.

**Exposure time:** 4 minutes

This blot was produced using a 4-12% Bis-tris gel under the MOPS buffer system. The gel was run at 200V for 50 minutes before being transferred onto a Nitrocellulose membrane at 30V for 70 minutes.

The membrane was then blocked for an hour using 2% Bovine Serum Albumin before being incubated with ab12405 overnight at 4°C. Antibody binding was detected using an anti-rabbit antibody conjugated to HRP, and visualised using ECL development solution ab133406



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