abcam

Product datasheet

Anti-KMT1A / SUV39H1 antibody [44.1] ab12405

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Overview

Product name	Anti-KMT1A / SUV39H1 antibody [44.1]
Description	Mouse monoclonal [44.1] to KMT1A / SUV39H1
Host species	Mouse
Tested applications	**Suitable for:** WB
Species reactivity	**Reacts with:** Human **Predicted to work with:** Mouse, Rat
Immunogen	Recombinant fragment. This information is proprietary to Abcam and/or its suppliers.
Epitope	ab12405 recognizes an epitope in the N-terminal (195 amino acids) of human KMT1A / SUV39H1.
Positive control	HCT116, U87-MG and TE671 cell lysates.
General notes	Storage in frost-free freezers is also not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. This antibody clone is manufactured by Abcam. If you require a custom buffer formulation or conjugation for your experiments, please contact **orders@abcam.com**. The Life Science industry has been in the grips of a reproducibility crisis for a number of years. Abcam is leading the way in addressing this with our range of recombinant monoclonal antibodies and knockout edited cell lines for gold-standard validation. Please check that this product meets your needs before purchasing. If you have any questions, special requirements or concerns, please send us an inquiry and/or contact our Support team ahead of purchase. Recommended alternatives for this product can be found below, along with publications, customer reviews and Q&As

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	pH: 7.40 Preservative: 0.02% Sodium azide Constituents: PBS, 6.97% L-Arginine

Purity	Protein G purified
Clonality	Monoclonal
Clone number	44.1
Isotype	IgG1

Applications

The Abpromise guarantee 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
WB	★☆☆☆☆ **(1)**	Use a concentration of 1 - 5 µg/ml. Predicted molecular weight: 48 kDa. 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

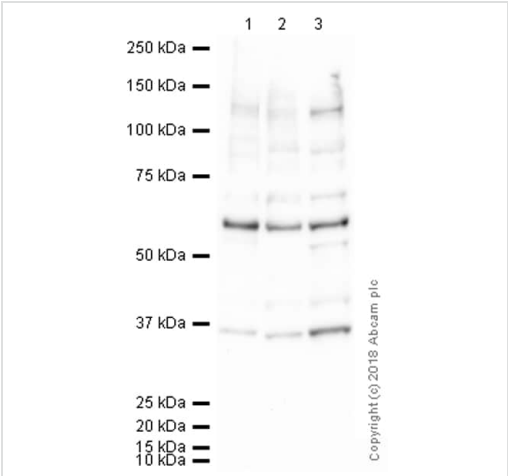
Function Histone methyltransferase that specifically trimethylates 'Lys-9' of histone H3 using monomethylated H3 'Lys-9' as substrate. Also weakly methylates histone H1 (in vitro). H3 'Lys-9' trimethylation represents a specific tag for epigenetic transcriptional repression by recruiting HP1 (CBX1, CBX3 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. 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. 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] (ab12405)

All lanes : Anti-KMT1A / SUV39H1 antibody [44.1] (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
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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