abcam

Product datasheet

Anti-KMT1A / SUV39H1 antibody [42AT239.96.72] ab3659

1 Abreviews 1 Image

Overview

Product name	Anti-KMT1A / SUV39H1 antibody [42AT239.96.72]
Description	Mouse monoclonal [42AT239.96.72] to KMT1A / SUV39H1
Host species	Mouse
Tested applications	**Suitable for:** ELISA, WB **Unsuitable for:** ICC/IF
Species reactivity	**Reacts with:** Human
Immunogen	This antibody was raised using purified recombinant fusion protein encoding N-terminal of human SUV39H1.

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	Preservative: 0.1% Sodium azide
Purity	Protein G purified
Clonality	Monoclonal
Clone number	42AT239.96.72
Isotype	IgG1

Applications

The Abpromise guarantee Our **Abpromise guarantee** covers the use of ab3659 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
ELISA		1/1000.

Application	Abreviews	Notes
WB		1/100 - 1/500. Detects a band of approximately 47 kDa (predicted molecular weight: 47.9 kDa).

Application notes Is unsuitable for ICC/IF.

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.

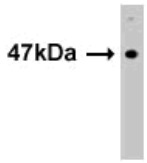
Developmental stage Accumulates during mitosis at centromeres during prometaphase, but dissociates from the centromere at the meta- to anaphase transition.

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 [42AT239.96.72] (ab3659)

Western analysis of extracts from 293 cells using SUV39H1 antibody (ab3659).
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