abcam

ab107225

Anti-KMT1E / SETDB1 antibody [5H6A12]

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	Preservative: 0.05% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Recombinant Fragment Protein within Human SETDB1. The exact immunogen used to generate this antibody is proprietary information. Database link Q15047
Clone number	5H6A12
Purification technique	Affinity purification Protein G
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Purified from tissue culture supernatant.

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	1/100
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Expected

Species	African green monkey, Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

WB

Tested

Species	Human
Dilution info	1/500 - 1/2000
Notes	-

Species	African green monkey
Dilution info	1/500 - 1/2000
Notes	-

Species	Mouse
Dilution info	1/500 - 1/2000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/200 - 1/1000
Notes	-

Expected

Species	African green monkey, Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information SETDB1

Function	Histone methyltransferase that specifically trimethylates 'Lys-9' of histone H3 (H3K9me3) (PubMed:11959841, PubMed:12869583, PubMed:14536086, PubMed:27237050, PubMed:39096901). H3 'Lys-9' trimethylation represents a specific tag for epigenetic transcriptional repression by recruiting HP1 (CBX1, CBX3 and/or CBX5) proteins to methylated histones (PubMed:11959841, PubMed:12869583, PubMed:14536086, PubMed:27237050, PubMed:39096901). Mainly functions in euchromatin regions, thereby playing a central role in the silencing of euchromatic genes (PubMed:12869583, PubMed:14536086, PubMed:27237050, PubMed:39096901). H3 'Lys-9' trimethylation is coordinated with DNA methylation (PubMed:12869583, PubMed:14536086, PubMed:27237050, PubMed:39096901). Forms a complex with MBD1 and ATF7IP that represses transcription and couples DNA methylation and histone 'Lys-9' trimethylation (PubMed:14536086). Its activity is dependent on MBD1 and is heritably maintained through DNA replication by being recruited by CAF-1 (PubMed:14536086). SETDB1 is targeted to histone H3 by TRIM28/TIF1B, a factor recruited by KRAB zinc-finger proteins (PubMed:24623306). Required for HUSH-mediated heterochromatin formation and gene silencing (PubMed:27732843). Probably forms a corepressor complex required for activated KRAS-mediated promoter hypermethylation and transcriptional silencing of tumor suppressor genes (TSGs) or other tumor-related genes in colorectal cancer (CRC) cells (PubMed:24623306). Required to maintain a transcriptionally repressive state of genes in undifferentiated embryonic stem cells (ESCs) (PubMed:24623306). In ESCs, in collaboration with TRIM28, is also required for H3K9me3 and silencing of endogenous and introduced retroviruses in a DNA-methylation independent-pathway (PubMed:37938770). Associates at promoter regions of tumor suppressor genes (TSGs) leading to their gene silencing (PubMed:24623306). The SETDB1-TRIM28-ZNF274 complex may play a role in recruiting ATRX to the 3'-exons of zinc-finger coding genes with atypical chromatin signatures to establish or maintain/protect H3K9me3 at these transcriptionally active regions (PubMed:27029610). Also catalyzes mono- and dimethylation of 'Lys-9' of free histone H3 (H3K9me1 and H3K9me2) during translation in the cytoplasm, which is then transported to the nucleus and incorporated into nucleosomes (PubMed:26405197). Isoform 2. Lacks all domains required for histone methyltransferase activity.

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

This product was changed from ascites to supernatant. Lot no's high than GR223392-13 are from Tissue Culture Supernatant

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	KMT1E also known as SETDB1 is a lysine methyltransferase with a role in epigenetic regulation. This enzyme has a molecular weight of approximately 143 kDa. It actively methylates histone H3 at lysine 9 (H3K9) a modification associated with transcriptional repression. SETDB1 contains a SET domain responsible for its methyltransferase activity. Expressed mainly in the nucleus this enzyme plays a critical role in controlling gene expression across various tissues including the brain spleen and testis.
Biological function summary	The methyltransferase SETDB1 impacts chromatin structure and gene silencing. It operates as a part of the histone methylation complex collaborating with co-factors like ATF7IP and MBD1 to achieve highly specific gene repression. By catalyzing trimethylation of H3K9 it creates a binding site for HP1 proteins facilitating the formation of heterochromatin. This action is essential for processes such as X-chromosome inactivation and the repression of transposable elements.
Pathways	Regulation through SETDB1 influences key biological processes. This enzyme is integral to the PRC2 (Polycomb Repressive Complex 2) pathway maintaining transcriptional silencing during development. Furthermore SETDB1 works alongside SUV39H1 in dynamic change of heterochromatin states regulating genes involved in cell cycle and differentiation. Such pathways highlight its significant interactions with proteins like EZH2 and EED which assist in maintaining stable gene silencing.
Associated diseases and disorders	SETDB1 shows a connection with cancer particularly in melanoma and lung cancer. Overexpression or dysregulation of SETDB1 can lead to aberrant methylation patterns contributing to oncogenesis through alteration of tumor suppressor genes. Additionally schizophrenia has an association with SETDB1 where improper histone modification can impact gene expression programs critical for neurological function. In these contexts proteins such as DNMT1 also play a role as they collaborate in epigenetic modifications linked to the disease development.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

We do not recommend this combination. It is not covered by our product promise.

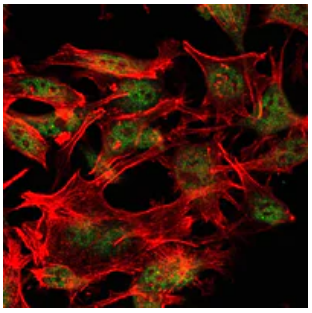
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

---

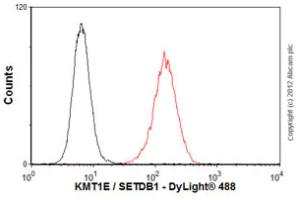
3 product images



Immunocytochemistry/ Immunofluorescence - Anti-KMT1E / SETDB1 antibody [5H6A12] (ab107225)

KMT1E / SETDB1 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-KMT1E / SETDB1 antibody

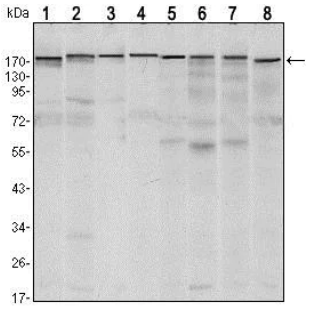
Immunofluoresence detection of SETDB1 in LOVO cells using ab107225 (green). Actin fillaments have been labeled with Alexa Fluor-555 phalloidin (red).



Flow Cytometry - Anti-KMT1E / SETDB1 antibody [5H6A12] (ab107225)

KMT1E / SETDB1 Flow Cytometry staining using mouse Anti-KMT1E / SETDB1 antibody

Overlay histogram showing Ramos cells stained with ab107225 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab107225, 1/100 dilution) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1] (ab91353, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed. This antibody gave a positive signal in Ramos cells fixed with 4% paraformaldehyde (10 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions.



Western blot - Anti-KMT1E / SETDB1 antibody [5H6A12] (ab107225)

All lanes:
Western blot - Anti-KMT1E / SETDB1 antibody [5H6A12] (ab107225) at 1/500 dilution

Lane 1:
MCF-7

Lane 2:
T47D

Lane 3:
HEK293

Lane 4:
JURKAT

Lane 5:
NIH/3T3

Lane 6:
F9

Lane 7:
RAW264.7

Lane 8:
COS-7

Predicted band size: 143 kDa

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.