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SETDB1 Antibody

Purified Mouse Monoclonal Antibody
Catalog # AO1484a

Product Information

Application	WB, ICC, E
Primary Accession	Q15047
Reactivity	Human, Mouse, Monkey
Host	Mouse
Clonality	Monoclonal
Clone Names	5H6A12
Isotype	IgG1
Calculated MW	143157
Description	This gene encodes a histone methyltransferase. The encoded enzyme catalyzes the reaction of S-adenosyl-L-methionine and histone L-lysine to produce S-adenosyl-L-homocysteine and histone N(6)-methyl-L-lysine. The encoded protein likely functions in transcriptional repression. Alternatively spliced transcript variants have been described.
Immunogen	Purified recombinant fragment of human SETDB1 expressed in E. Coli.
Formulation	Ascitic fluid containing 0.03% sodium azide.

Additional Information

Gene ID	9869
Other Names	Histone-lysine N-methyltransferase SETDB1, 2.1.1.43, ERG-associated protein with SET domain, ESET, Histone H3-K9 methyltransferase 4, H3-K9-HMTase 4, Lysine N-methyltransferase 1E, SET domain bifurcated 1, SETDB1, KIAA0067, KMT1E
Dilution	WB~~1/500 - 1/2000 ICC~~N/A E~~N/A
Storage	Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	SETDB1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	SETDB1 {ECO:0000303|PubMed:11959841, ECO:0000312|HGNC:HGNC:10761}

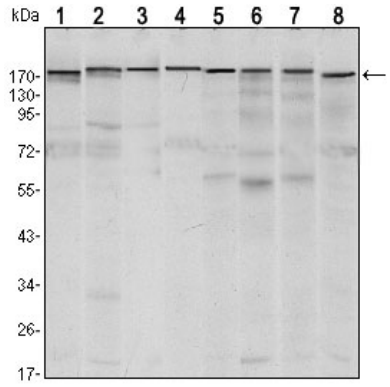
Function	Histone methyltransferase that specifically trimethylates 'Lys-9' of histone H3 (H3K9me3) (PubMed:11959841, PubMed:12869583, PubMed:14536086, PubMed:27237050, PubMed:39096901). H3 'Lys-9' trimethylation represents a specific tag for epigenetic transcriptional repression by recruiting HP1 (CBX1, 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).
Cellular Location	Nucleus. Cytoplasm. Chromosome Note=Associated with non-pericentromeric regions of chromatin (PubMed:27029610). Recruited to H3K9me and H3K19ac marks on chromatin (PubMed:29234025). Excluded from nucleoli and islands of condensed chromatin (PubMed:27732843).
Tissue Location	Widely expressed. High expression in testis.

References

1. Proteomics. 2005 Sep;5(14):3589-99. 2. Proc Natl Acad Sci U S A. 2006 Apr 4;103(14):5308-13. 3. Mol Cell Biochem. 2007 Nov;305(1-2):35-44.

Images

Figure 1: Western blot analysis using SETDB1 mouse mAb against MCF-7 (1),T47D (2), HEK293 (3), JURKAT (4), NIH/3T3 (5), F9 (6), RAW246.7 (7) and Cos7 (8) cell lysate.



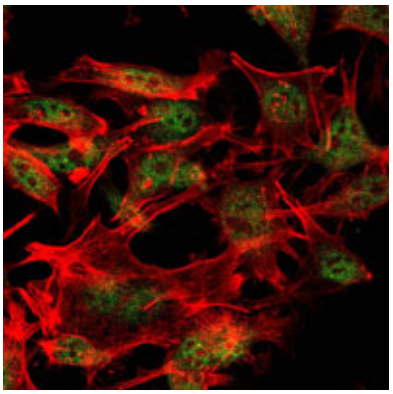


Figure 2: Immunofluorescence analysis of LOVO cells using SETDB1 mouse mAb (green). Red: Actin filaments have been labeled with Alexa Fluor-555 phalloidin.

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