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MLL1 Antibody (C-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP6182a

Product Information

Application	E
Primary Accession	Q03164
Other Accession	P55200, NP_005924
Reactivity	Human
Predicted	Mouse, Rat, Bovine, Canine, Rabbit, Chicken
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB1917/1918
Calculated MW	431764
Antigen Region	3815-3844

Additional Information

Gene ID	4297
Other Names	Histone-lysine N-methyltransferase 2A, Lysine N-methyltransferase 2A, ALL-1, CXXC-type zinc finger protein 7, Myeloid/lymphoid or mixed-lineage leukemia, Myeloid/lymphoid or mixed-lineage leukemia protein 1, Trithorax-like protein, Zinc finger protein HRX, MLL cleavage product N320, N-terminal cleavage product of 320 kDa, p320, MLL cleavage product C180, C-terminal cleavage product of 180 kDa, p180, KMT2A, ALL1, CXXC7, HRX, HTRX, MLL, MLL1, TRX1
Target/Specificity	This MLL1 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 3815-3844 amino acids from the C-terminal region of human MLL1.
Dilution	E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	MLL1 Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	KMT2A
Synonyms	ALL1, CXXC7, HRX, HTRX, MLL, MLL1, TRX1
Function	Histone methyltransferase that plays an essential role in early development and hematopoiesis (PubMed:12453419, PubMed:15960975, PubMed:19187761, PubMed:19556245, PubMed:20677832, PubMed:21220120, PubMed:26886794). Catalytic subunit of the MLL1/MLL complex, a multiprotein complex that mediates both methylation of 'Lys-4' of histone H3 (H3K4me) complex and acetylation of 'Lys-16' of histone H4 (H4K16ac) (PubMed:12453419, PubMed:15960975, PubMed:19187761, PubMed:19556245, PubMed:20677832, PubMed:21220120, PubMed:24235145, PubMed:26886794). Catalyzes methyl group transfer from S-adenosyl-L- methionine to the epsilon-amino group of 'Lys-4' of histone H3 (H3K4) via a non-processive mechanism. Part of chromatin remodeling machinery predominantly forms H3K4me1 and H3K4me2 methylation marks at active chromatin sites where transcription and DNA repair take place (PubMed:12453419, PubMed:15960975, PubMed:19187761, PubMed:19556245, PubMed:20677832, PubMed:21220120, PubMed:25561738, PubMed:26886794). Has weak methyltransferase activity by itself, and requires other component of the MLL1/MLL complex to obtain full methyltransferase activity (PubMed:19187761, PubMed:26886794). Has no activity toward histone H3 phosphorylated on 'Thr-3', less activity toward H3 dimethylated on 'Arg-8' or 'Lys-9', while it has higher activity toward H3 acetylated on 'Lys-9' (PubMed:19187761). Binds to unmethylated CpG elements in the promoter of target genes and helps maintain them in the nonmethylated state (PubMed:20010842). Required for transcriptional activation of HOXA9 (PubMed:12453419, PubMed:20010842, PubMed:20677832). Promotes PPP1R15A-induced apoptosis (PubMed:10490642). Plays a critical role in the control of circadian gene expression and is essential for the transcriptional activation mediated by the CLOCK-BMAL1 heterodimer (By similarity). Establishes a permissive chromatin state for circadian transcription by mediating a rhythmic methylation of 'Lys-4' of histone H3 (H3K4me) and this histone modification directs the circadian acetylation at H3K9 and H3K14 allowing the recruitment of CLOCK-BMAL1 to chromatin (By similarity). Also has auto-methylation activity on Cys-3882 in absence of histone H3 substrate (PubMed:24235145).
Cellular Location	Nucleus [MLL cleavage product C180]: Nucleus. Note=Localizes to a diffuse nuclear pattern when not associated with MLL cleavage product N320
Tissue Location	Heart, lung, brain and T- and B-lymphocytes.

Background

Chromosome 11q23 translocations targeting mixed-lineage leukemia 1 (MLL) gene have been correlated with human acute leukemias, including lymphoid, myeloid, monoblastic and myelomonocytic varieties. More than 3 dozen genes that fuse to with MLL have been identified in various types of malignancies, including AF4, AF9, ENL, CBL, LARG, LPP, GMPS, and FBP17. The 431 kDa MLL protein exhibits greatest abundancy in cerebral cortex, kidney, thyroid, and lymphoid tissues. Inside the cell, MLL is part of a stable multiprotein supercomplex, the majority of which are components of transcription complexes, including TFIID. The MLL multiprotein complex seems to remodel, acetylate, deacetylate, and methylate nucleosomes and/or free histones. MLL contains a SET domain characteristic for histone H3 lysine-4-specific methyltransferases. Oncogenic MLL fusion proteins appear to alter the methyltransferase activity of wild-type MLL.

References

Bertrand, F.E., et al., Leukemia 17(12):2454-2459 (2003). Dyson, M.J., et al., Cancer Genet. Cytogenet.

147(1):81-83 (2003). Xia, Z.B., et al., Proc. Natl. Acad. Sci. U.S.A. 100(14):8342-8347 (2003). Ferrando, A.A., et al., Blood 102(1):262-268 (2003). Echlin-Bell, D.R., et al., Hum. Genet. 113(1):80-91 (2003).

Citations

- Bisphenol-A and diethylstilbestrol exposure induces the expression of breast cancer associated long noncoding RNA HOTAIR in vitro and in vivo.
- FLII and MLL1 Cooperatively Regulate Aryl Hydrocarbon Receptor-Mediated Transcription in ARPE-19 Cells

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