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Dnmt3L Antibody (C-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP1040a

Product Information

Application	WB, IHC-P, E
Primary Accession	Q9UJW3
Reactivity	Human
Predicted	Bovine, Canine
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	43583
Antigen Region	357-388

Additional Information

Gene ID	29947
Other Names	DNA (cytosine-5)-methyltransferase 3-like, DNMT3L
Target/Specificity	This Dnmt3L antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 357-388 amino acids from the C-terminal region of human Dnmt3L.
Dilution	WB~~1:1000 IHC-P~~1:100~500 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	Dnmt3L Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	DNMT3L
Function	Catalytically inactive regulatory factor of DNA methyltransferases that can either promote or inhibit DNA methylation depending on the context (By similarity). Essential for the function of DNMT3A and DNMT3B: activates DNMT3A and DNMT3B by binding to their catalytic domain (PubMed:17687327). Acts by accelerating the binding of DNA and

S-adenosyl-L-methionine (AdoMet) to the methyltransferases and dissociates from the complex after DNA binding to the methyltransferases (PubMed:17687327). Recognizes unmethylated histone H3 lysine 4 (H3K4me0) and induces de novo DNA methylation by recruitment or activation of DNMT3 (PubMed:17687327). Plays a key role in embryonic stem cells and germ cells (By similarity). In germ cells, required for the methylation of imprinted loci together with DNMT3A (By similarity). In male germ cells, specifically required to methylate retrotransposons, preventing their mobilization (By similarity). Plays a key role in embryonic stem cells (ESCs) by acting both as an positive and negative regulator of DNA methylation (By similarity). While it promotes DNA methylation of housekeeping genes together with DNMT3A and DNMT3B, it also acts as an inhibitor of DNA methylation at the promoter of bivalent genes (By similarity). Interacts with the EZH2 component of the PRC2/EED-EZH2 complex, preventing interaction of DNMT3A and DNMT3B with the PRC2/EED-EZH2 complex, leading to maintain low methylation levels at the promoters of bivalent genes (By similarity). Promotes differentiation of ESCs into primordial germ cells by inhibiting DNA methylation at the promoter of RHOX5, thereby activating its expression (By similarity).

Cellular Location Nucleus.

Tissue Location Expressed at low levels in several tissues including testis, ovary, and thymus.

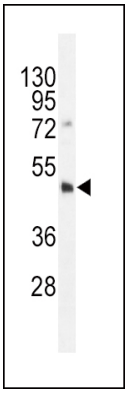
Background

CpG methylation is an epigenetic modification that is important for embryonic development, imprinting, and X-chromosome inactivation. Studies in mice have demonstrated that DNA methylation is required for mammalian development. This gene encodes a nuclear protein with similarity to DNA methyltransferases. This protein is not thought to function as a DNA methyltransferase as it does not contain the amino acid residues necessary for methyltransferase activity. However, this protein does stimulate de novo methylation by DNA cytosine methyltransferase 3 alpha and it is thought to be required for the establishment of maternal genomic imprints. This protein also mediates transcriptional repression through interaction with histone deacetylase 1. Alternative splicing results in two transcript variants. An additional splice variant has been described but its biological validity has not been determined.

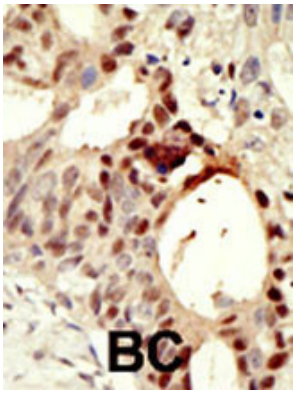
References

Chedin, F., et al., Proc. Natl. Acad. Sci. U.S.A. 99(26):16916-16921 (2002). Kierszenbaum, A.L., Mol. Reprod. Dev. 63(3):269-272 (2002). Deplus, R., et al., Nucleic Acids Res. 30(17):3831-3838 (2002). Hata, K., et al., Development 129(8):1983-1993 (2002). Burgers, W.A., et al., Trends Genet. 18(6):275-277 (2002).

Images



Dnmt3L-R322 (Cat. #AP1040a) western blot analysis in HL-60 cell line lysates (35ug/lane).This demonstrates the DNMT3L antibody detected the DNMT3L protein (arrow).



Formalin-fixed and paraffin-embedded human cancer tissue reacted with the primary antibody, which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated. BC = breast carcinoma; HC = hepatocarcinoma.

Citations

- DNA methylation and regulation of DNA methyltransferases in a freeze tolerant vertebrate.
- Stat4 limits DNA methyltransferase recruitment and DNA methylation of the IL-18Ralpha gene during Th1 differentiation.

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