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Dnmt3b Antibody

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP1035A

Product Information

Application	IHC-P, WB, E
Primary Accession	Q9UBC3
Reactivity	Human
Predicted	Bovine, Canine, Rabbit
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	95751
Antigen Region	389-417

Additional Information

Gene ID	1789
Other Names	DNA (cytosine-5)-methyltransferase 3B, Dnmt3b, DNA methyltransferase HsaIIIB, DNA MTase HsaIIIB, MHsaIIIB, DNMT3B
Target/Specificity	This Dnmt3b antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 389-417 amino acids from human Dnmt3b.
Dilution	IHC-P~~1:100~500 WB~~1:2000 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	Dnmt3b Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	DNMT3B
Function	Required for genome-wide de novo methylation and is essential for the establishment of DNA methylation patterns during development. DNA methylation is coordinated with methylation of histones. May preferentially methylates nucleosomal DNA within the nucleosome core region. May

	function as transcriptional co-repressor by associating with CBX4 and independently of DNA methylation. Seems to be involved in gene silencing (By similarity). In association with DNMT1 and via the recruitment of CTCFL/BORIS, involved in activation of BAG1 gene expression by modulating dimethylation of promoter histone H3 at H3K4 and H3K9. Isoforms 4 and 5 are probably not functional due to the deletion of two conserved methyltransferase motifs. Functions as a transcriptional corepressor by associating with ZHX1. Required for DUX4 silencing in somatic cells (PubMed:27153398).
Cellular Location	Nucleus
Tissue Location	Ubiquitous; highly expressed in fetal liver, heart, kidney, placenta, and at lower levels in spleen, colon, brain, liver, small intestine, lung, peripheral blood mononuclear cells, and skeletal muscle. Isoform 1 is expressed in all tissues except brain, skeletal muscle and PBMC, 3 is ubiquitous, 4 is expressed in all tissues except brain, skeletal muscle, lung and prostate and 5 is detectable only in testis and at very low level in brain and prostate

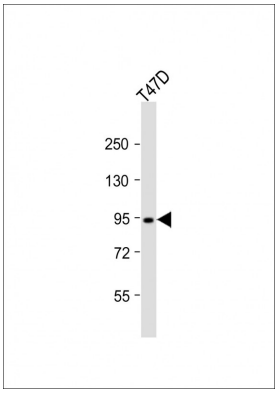
Background

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. Dnmt3b is a DNA methyltransferase which is thought to function in de novo methylation, rather than maintenance methylation. The protein localizes primarily to the nucleus and its expression is developmentally regulated. Mutations in this gene cause the immunodeficiency-centromeric instability-facial anomalies (ICF)syndrome.

References

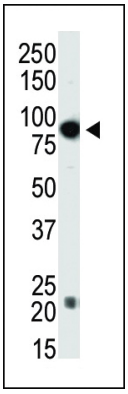
Okano, M., et al., Cell 99(3):247-257 (1999). Yin, B., et al., Zhongguo Yi Xue Ke Xue Yuan Xue Bao 21(6):431-438 (1999). Okano, M., et al., Nat. Genet. 19(3):219-220 (1998).

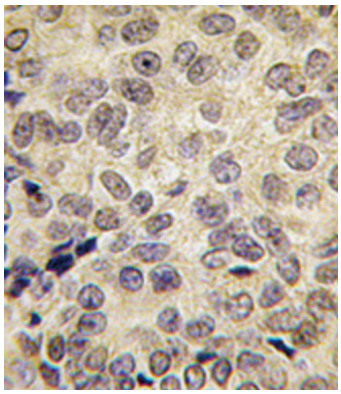
Images



Anti-Dnmt3b Antibody (C403)at 1:2000 dilution + T47D whole cell lysates Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution Predicted band size : 95 kDa Blocking/Dilution buffer: 5% NFDM/TBST.

Western blot analysis of anti-Dnmt3b Pab (Cat. #AP1035a) in T47-D cell lysate. Dnmt3b (arrow) was detected using purified Pab. Secondary HRP-anti-rabbit was used for signal visualization with chemiluminescence.





Formalin-fixed and paraffin-embedded human prostata carcinoma tissue reacted with Dnmt3b antibody (Cat.#AP1035a), 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.

Citations

- Maternal Exposure to High-Fat Diet Induces Long-Term Derepressive Chromatin Marks in the Heart
- Sex- and tissue-specific expression of maintenance and de novo DNA methyltransferases upon low dose X-irradiation in mice.
- Age-related changes in Usp9x protein expression and DNA methylation in mouse brain.
- DNA methylation and regulation of DNA methyltransferases in a freeze tolerant vertebrate.
- OxLDL up-regulates microRNA-29b, leading to epigenetic modifications of MMP-2/MMP-9 genes: a novel mechanism for cardiovascular diseases.
- T cell receptor (TCR) and transforming growth factor β (TGF-β) signaling converge on DNA (cytosine-5)-methyltransferase to control forkhead box protein 3 (foxp3) locus methylation and inducible regulatory T cell differentiation.
- Fractionated low-dose exposure to ionizing radiation leads to DNA damage, epigenetic dysregulation, and behavioral impairment.
- 5-Aza-2'-deoxycytidine induces human Tenon's capsule fibroblasts differentiation and fibrosis by up-regulating TGF-β type I receptor.
- Functional switching of TGF-beta1 signaling in liver cancer via epigenetic modulation of a single CpG site in TTP promoter.
- Aberrant epigenetic modifications in hepatocarcinogenesis induced by hepatitis B virus X protein.
- Epigenetic reactivation of tumor suppressor genes by a novel small-molecule inhibitor of human DNA methyltransferases.
- Irradiation induces DNA damage and modulates epigenetic effectors in distant bystander tissue in vivo.
- Fractionated low-dose radiation exposure leads to accumulation of DNA damage and profound alterations in DNA and histone methylation in the murine thymus.
- Role of epigenetic effectors in maintenance of the long-term persistent bystander effect in spleen in vivo.
- Effect of long-term tamoxifen exposure on genotoxic and epigenetic changes in rat liver: implications for tamoxifen-induced hepatocarcinogenesis.
- MicroRNA-29 family reverts aberrant methylation in lung cancer by targeting DNA methyltransferases 3A and 3B.
- DNA methyltransferase expression in the human endometrium: down-regulation by progesterone and estrogen.
- Systems-level dynamic analyses of fate change in murine embryonic stem cells.

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