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Mouse Monoclonal Antibody to DNMT1

Purified Mouse Monoclonal Antibody
Catalog # AO2327a

Product Information

Application	WB, IHC, E
Primary Accession	P26358
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Clone Names	2D10G8
Isotype	Mouse IgG1
Calculated MW	183165
Description	DNA (cytosine-5-)-methyltransferase 1 has a role in the establishment and regulation of tissue-specific patterns of methylated cytosine residues. Aberrant methylation patterns are associated with certain human tumors and developmental abnormalities. Two transcript variants encoding different isoforms have been found for this gene.;
Immunogen	Purified recombinant fragment of human DNMT1 (AA: 1317-1616) expressed in E. Coli.
Formulation	Purified antibody in PBS with 0.05% sodium azide
Application Note	ELISA: 1/10000; WB: 1/500 - 1/2000; IHC: 1/200 - 1/1000;

Additional Information

Gene ID	1786
Other Names	AIM; DNMT; MCMT; CXXC9; HSN1E; ADCADN
Dilution	WB~~1:1000 IHC~~1:100~500 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	Mouse Monoclonal Antibody to DNMT1 is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	DNMT1 {ECO:0000303|Ref.3, ECO:0000312|HGNC:HGNC:2976}
Function	DNA methyltransferase that methylates CpG residues (PubMed: 17200670,

PubMed:18754681, PubMed:21745816, PubMed:26070743). Preferentially methylates hemimethylated DNA (PubMed:21745816, PubMed:26070743). Associates with DNA replication sites in S phase maintaining the methylation pattern in the newly synthesized strand, that is essential for epigenetic inheritance (PubMed:17200670, PubMed:21745816). Associates with chromatin during G2 and M phases to maintain DNA methylation independently of replication (PubMed:21745816). It is responsible for maintaining methylation patterns established in development (PubMed:21745816). DNA methylation is coordinated with methylation of histones (PubMed:16357870). Mediates transcriptional repression by direct binding to HDAC2 (PubMed:10888872). In association with DNMT3B 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 (PubMed:18413740). 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). Also required to maintain a transcriptionally repressive state of genes in undifferentiated embryonic stem cells (ESCs) (PubMed:24623306). Associates at promoter regions of tumor suppressor genes (TSGs) leading to their gene silencing (PubMed:24623306).

Cellular Location

Nucleus. Chromosome Note=Associates with replication foci during S-phase: recruited to hemimethylated DNA sites via its RFTS domain, which specifically recognizes and binds histone H3 ubiquitinated at 'Lys-14', 'Lys-18' and 'Lys-23' (H3K14ub, H3K18ub and H3K23ub, respectively) (PubMed:29053958). Localized to the perinucleolar region (PubMed:24492612).

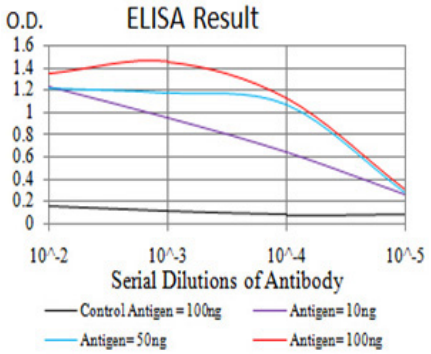
Tissue Location

Ubiquitous; highly expressed in fetal tissues, heart, kidney, placenta, peripheral blood mononuclear cells, and expressed at lower levels in spleen, lung, brain, small intestine, colon, liver, and skeletal muscle. Isoform 2 is less expressed than isoform 1.

References

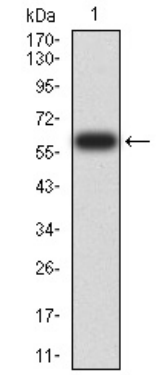
1.J Biol Chem. 2013 Jul 5;288(27):19673-84. ; 2.Int J Oncol. 2013 Jul;43(1):228-36.;

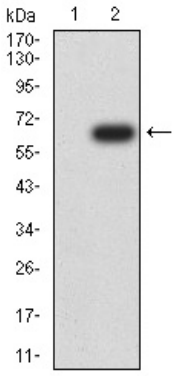
Images



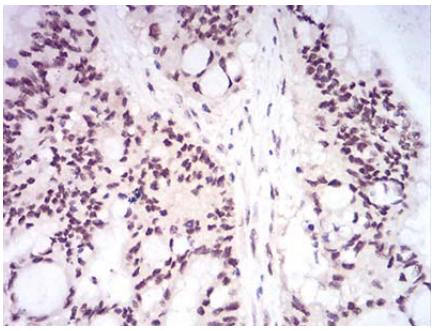
Black line: Control Antigen (100 ng);Purple line: Antigen (10ng); Blue line: Antigen (50 ng); Red line:Antigen (100 ng)

Western blot analysis using DNMT1 mAb against human DNMT1 (AA: 1317-1616) recombinant protein. (Expected MW is 59.3 kDa)

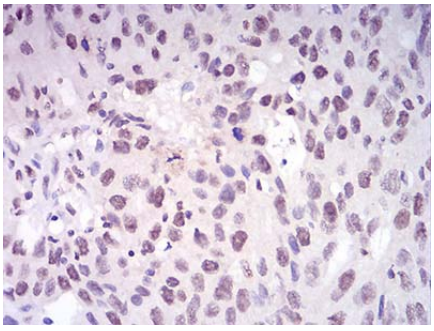




Western blot analysis using DNMT1 mAb against HEK293 (1) and DNMT1 (AA: 1317-1616)-hIgGFc transfected HEK293 (2) cell lysate.



Immunohistochemical analysis of paraffin-embedded colon cancer tissues using DNMT1 mouse mAb with DAB staining.



Immunohistochemical analysis of paraffin-embedded ovarian cancer tissues using DNMT1 mouse mAb with DAB staining.

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