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DNA Methyltransferase 3a (Clone 64B814.1) Antibody
Mouse Monoclonal Antibody
Catalog # ABV11110

Specification

DNA Methyltransferase 3a (Clone 64B814.1) Antibody - Product Information

Application	**WB, IF, ICC**
Primary Accession	O88508
Reactivity	**Human, Mouse**
Host	**Mouse**
Clonality	**Monoclonal**
Isotype	**Mouse IgG1κ**
Calculated MW	**101672**

DNA Methyltransferase 3a (Clone 64B814.1) Antibody - Additional Information

Gene ID 13435

Positive Control	**Western blot: Transfected 293 cell lysate, untransfected 293 cell lysate**
Application & Usage	**Western blot: 1-3 µg/ml, IF/ICC: 5 µg/ml. However, the optimal conditions should be determined individually.**

Other Names
DNMT3, DNMT3A

Target/Specificity
DNMT3A

Antibody Form
Liquid

Appearance
Colorless liquid

Formulation
50 µg of antibody in 100 µl PBS containing 0.05% BSA and 0.05% sodium azide.

Handling
The antibody solution should be gently mixed before use.

Reconstitution & Storage
-20 °C

Background Descriptions

Precautions
DNA Methyltransferase 3a (Clone 64B814.1) Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

DNA Methyltransferase 3a (Clone 64B814.1) Antibody - Protein Information

Name Dnmt3a {ECO:0000303|PubMed:12138111, ECO:0000312|MGI:MGI:1261827}

Function
Required for genome-wide de novo methylation and is essential for the establishment of DNA methylation patterns during development (PubMed:9662389, PubMed:11399089, PubMed:10555141, PubMed:11919202, PubMed:16567415, PubMed:17713477). DNA methylation is coordinated with methylation of histones (PubMed:9662389, PubMed:11399089, PubMed:10555141, PubMed:11919202, PubMed:16567415, PubMed:17713477). It modifies DNA in a non-processive manner and also methylates non-CpG sites (PubMed:9662389, PubMed:11399089, PubMed:10555141, PubMed:11919202, PubMed:16567415, PubMed:17713477). May preferentially methylate DNA linker between 2 nucleosomal cores and is inhibited by histone H1 (PubMed:18823905). Plays a role in paternal and maternal imprinting (PubMed:15215868). Required for methylation of most imprinted loci in germ cells (PubMed:15215868). Acts as a transcriptional corepressor for ZBTB18 (PubMed:11350943). Recruited to trimethylated 'Lys-36' of histone H3 (H3K36me3) sites (PubMed:20547484). Can actively repress transcription through the recruitment of HDAC activity (PubMed:11350943). Also has weak auto- methylation activity on Cys-706 in absence of DNA (PubMed:21481189).

Cellular Location
Nucleus. Chromosome. Cytoplasm {ECO:0000250|UniProtKB:Q9Y6K1}. Note=Accumulates in the major satellite repeats at pericentric heterochromatin.

Tissue Location
Isoform 1 is expressed ubiquitously at low levels. Expression of isoform 2 is restricted to tissues containing cells which are undergoing active de novo methylation, including spleen, testis and thymus.

DNA Methyltransferase 3a (Clone 64B814.1) Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

DNA Methyltransferase 3a (Clone 64B814.1) Antibody - Images

DNA Methyltransferase 3a (Clone 64B814.1) Antibody - Background

Methylation of DNA at cytosine residues plays an important role in regulation of gene expression, genomic imprinting, and is essential for mammalian development. Hypermethylation of CpG islands in tumor suppressor genes or hypomethylation of bulk genomic DNA may be linked with development of cancer. To date, three families of mammalian DNA methyltransferase genes have been identified which include DNMT1, DNMT2, and DNMT3. DNMT1 is constitutively expressed in proliferating cells and inactivation of this gene causes global demethylation of genomic DNA and embryonic lethality. DNMT2 is expressed at low levels in adult tissues and its inactivation does not affect DNA methylation or maintenance of methylation. The DNMT3 family members, DNMT3a and DNMT3b, are strongly expressed in embryonic stem (ES) cells but their expression is down regulated in differentiating ES cells and is low in adult somatic tissue. Recently, it has been shown that naturally occurring mutations of DNMT3b gene occur in patients with a rare autosomal recessive disorder, termed ICF (immunodeficiency, centromeric instability, and facial anomalies) syndrome.