

#3598 Store at -20C

DNMT3A (D23G1) Rabbit mAb


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Applications: WB, IP, IHC-P	Reactivity: H M R Mk B	Sensitivity: Endogenous	MW (kDa): 130	Source/Isotype: Rabbit IgG	UniProt ID: #Q9Y6K1	Entrez-Gene Id: 1788
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Product Usage Information

Application

Western Blotting
Immunoprecipitation
Immunohistochemistry (Paraffin)

Dilution

1:1000
1:50
1:50

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at -20°C. Do not aliquot the antibody.

Specificity / Sensitivity

DNMT3A (D23G1) Rabbit mAb detects endogenous levels of total DNMT3A protein. The antibody does not detect DNMT3A isoform 2 (Q9Y6K1-2/ NP_715640.2 or NP_001307822.1). In addition, this antibody does not cross-react with DNMT3B or other DNMT proteins. Focal cytoplasmic staining was observed in some tissues tested, testis in particular.

Species predicted to react based on 100% sequence homology:

Hamster, Dog, Pig, Horse

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide surrounding Lys96 of human DNMT3A protein.

Background

Methylation of DNA at cytosine residues in mammalian cells is a heritable, epigenetic modification that is critical for proper regulation of gene expression, genomic imprinting and development (1,2). Three families of mammalian DNA methyltransferases have been identified: DNMT1, DNMT2, and DNMT3 (1,2). DNMT1 is constitutively expressed in proliferating cells and functions as a maintenance methyltransferase, transferring proper methylation patterns to newly synthesized DNA during replication. DNMT3A and DNMT3B are strongly expressed in embryonic stem cells with reduced expression in adult somatic tissues. DNMT3A and DNMT3B function as *de novo* methyltransferases that methylate previously unmethylated regions of DNA. DNMT2 is expressed at low levels in adult somatic tissues and its inactivation affects neither *de novo* nor maintenance DNA methylation. DNMT1, DNMT3A, and DNMT3B together form a protein complex that interacts with histone deacetylases (HDAC1, HDAC2, Sin3A), transcriptional repressor proteins (RB, TAZ-1), and heterochromatin proteins (HP1, SUV39H1) to maintain proper levels of DNA methylation and facilitate gene silencing (3-8). Improper DNA methylation contributes to diseased states such as cancer (1,2). Hypermethylation of promoter CpG islands within tumor suppressor genes correlates with gene silencing and the development of cancer. In addition, hypomethylation of bulk genomic DNA correlates with and may contribute to the onset of cancer. DNMT1, DNMT3A, and DNMT3B are overexpressed in many cancers, including acute and chronic myelogenous leukemias, in addition to colon, breast, and stomach carcinomas (9-12).

Background References

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5. Geiman, T.M. et al. (2004) *Biochem. Biophys. Res. Commun.* 318, 544-55.
6. Rountree, M.R. et al. (2000) *Nat. Genet.* 25, 269-77.
7. Pradhan, S. and Kim, G.D. (2002) *EMBO J.* 21, 779-88.
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11. Xie, S. et al. (1999) *Gene* 236, 87-95.
12. Kanai, Y. et al. (2001) *Int. J. Cancer* 91, 205-12.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

WB: Western Blotting **IP:** Immunoprecipitation **IHC-P:** Immunohistochemistry (Paraffin)

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster **X:** Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse **GP:** Guinea Pig **Rab:** rabbit **All:** all species expected

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