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#64503

DNMT1 (D63A6) XP[®] Rabbit mAb (PE Conjugate)

For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
FC-FP	H M R Mk	Endogenous	Rabbit IgG	#P26358	1786

Product Usage Information

Application

Flow Cytometry (Fixed/Permeabilized)

Dilution

1:50

Storage

Supplied in PBS (pH 7.2), less than 0.1% sodium azide and 2 mg/ml BSA. Store at 4°C. Do not aliquot the antibody. Protect from light. Do not freeze.

Specificity/Sensitivity

DNMT1 (D63A6) XP[®] Rabbit mAb (PE Conjugate) detects endogenous levels of total DNMT1 protein.

Species predicted to react based on 100% sequence homology

Hamster, Bovine, Dog, Horse, Guinea Pig

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Leu985 of human DNMT1 protein.

Description

This Cell Signaling Technology antibody is conjugated to phycoerythrin (PE) and tested in-house for direct flow cytometric analysis in human cells. This antibody is expected to exhibit the same species cross-reactivity as the unconjugated DNMT1 (D63A6) XP[®] Rabbit mAb #5032.

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

- Hermann, A. et al. (2004) *Cell. Mol. Life Sci.* 61, 2571-87.
- Turek-Plewa, J. and Jagodziński, P.P. (2005) *Cell. Mol. Biol. Lett.* 10, 631-47.
- Kim, G.D. et al. (2002) *EMBO J.* 21, 4183-95.
- Fuks, F. et al. (2001) *EMBO J.* 20, 2536-44.
- Geiman, T.M. et al. (2004) *Biochem. Biophys. Res. Commun.* 318, 544-55.
- Rountree, M.R. et al. (2000) *Nat. Genet.* 25, 269-77.
- Pradhan, S. and Kim, G.D. (2002) *EMBO J.* 21, 779-88.
- Fuks, F. et al. (2003) *Nucleic Acids Res.* 31, 2305-12.
- Mizuno, S. et al. (2001) *Blood* 97, 1172-9.
- Robertson, K.D. et al. (1999) *Nucleic Acids Res.* 27, 2291-8.
- Xie, S. et al. (1999) *Gene* 236, 87-95.
- 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).

Applications Key

FC-FP: Flow Cytometry (Fixed/Permeabilized)

Cross-Reactivity Key

H: Human **M:** Mouse **R:** Rat **Mk:** Monkey

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