

#5119 Store at -20°C

DNMT1 (D59A4) Rabbit mAb



✓ 100 µl
(10 western blots)

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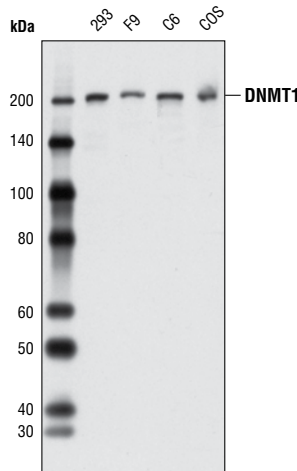
This product is intended for research purposes only. This product is not intended to be used for therapeutic or diagnostic purposes in humans or animals.

Applications	Species Cross-Reactivity*	Molecular Wt.	Isotype
W Endogenous	H, M, R, Mk, (B)	200 kDa	Rabbit IgG**

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 over-expressed in many cancers, including acute and chronic myelogenous leukemias, in addition to colon, breast and stomach carcinomas (9-12).

Specificity/Sensitivity: DNMT1 (D59A4) Rabbit mAb detects endogenous levels of total DNMT1 protein.

Source/Purification: Monoclonal antibody is produced by immunizing animals with a synthetic peptide derived from the sequence of human DNMT1 protein.



Western blot analysis of extracts from various cell lines using DNMT1 (D59A4) Rabbit mAb.

Entrez-Gene ID #1786
Swiss-Prot Acc. #P26358

Storage: Supplied in 10 mM 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.

*Species cross-reactivity is determined by western blot.

**Anti-rabbit secondary antibodies must be used to detect this antibody.

Recommended Antibody Dilutions:

Western blotting 1:1000

For application specific protocols please see the web page for this product at www.cellsignal.com.

Please visit www.cellsignal.com for a complete listing of recommended companion products.

Background References:

- (1) Hermann, A. et al. (2004) *Cell. Mol. Life Sci.* 61, 2571-2587.
- (2) Turek-Plewa, J. and Jagodzinski, P.P. (2005) *Cell. Mol. Biol. Lett.* 10, 631-647.
- (3) Kim, G.D. et al. (2002) *EMBO J.* 21, 4183-4195.
- (4) Fuks, F. et al. (2001) *EMBO J.* 20, 2536-2544.
- (5) Geiman, T.M. et al. (2004) *Biochem. Biophys. Res. Commun.* 318, 544-555.
- (6) Rountree, M.R. et al. (2000) *Nat. Genet.* 25, 269-277.
- (7) Pradhan, S. and Kim, G.D. (2002) *EMBO J.* 21, 779-788.
- (8) Fuks, F. et al. (2003) *Nucleic Acids Res.* 31, 2305-2312.
- (9) Mizuno, S. et al. (2001) *Blood* 97, 1172-1179.
- (10) Robertson, K.D. et al. (1999) *Nucleic Acids Res.* 27, 2291-2298.
- (11) Xie, S. et al. (1999) *Gene* 236, 87-95.
- (12) Kanai, Y. et al. (2001) *Int. J. Cancer* 91, 205-212.

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

Applications Key: W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide

Species Cross-Reactivity Key: H—human M—mouse R—rat Hm—hamster Mk—monkey 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 All—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.