

#2160 Store at -20°C

DNMT3A Antibody

✓ 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.

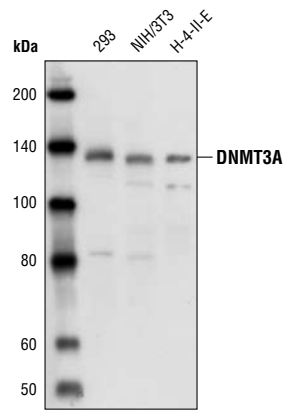
Entrez-Gene ID # 1788
Swiss-Prot Acc. # Q9Y6K1

Applications	Species Cross-Reactivity*	Molecular Wt.	Source
W, IP Endogenous	H, M, R, Mk, (B)	130 kDa	Rabbit**

Background: Methylation of DNA at cytosine residues in mammalian cells is an 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: DNMT3A Antibody detects endogenous levels of total DNMT3A protein. The antibody does not cross-react with DNMT3B or other DNMT proteins.

Source/Purification: Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to the human DNMT3A protein. Antibodies are purified by protein A and peptide affinity chromatography.



Western blot analysis of cell extracts from 293, NIH/3T3 and H-4-II-E cells using DNMT3A Antibody.

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.

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. 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
Immunoprecipitation	1:25

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.

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.