Revision 1

Store at -20C

#44145

DNMT3B (E9X7R) Rabbit mAb

Cell Signaling TECHNOLOGY®

Orders: 877-616-CELL (2355)
orders@cellsignal.com

Support: 877-678-TECH (8324)

Web: info@cellsignal.com
cellsignal.com

3 Trask Lane | Danvers | Massachusetts | 01923 | USA

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

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IP, IF-IC, ChIP	M	Endogenous	105	Rabbit IgG	#O88509	13436

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:50
Immunofluorescence (Immunocytochemistry)	1:1600
Chromatin IP	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

DNMT3B (E9X7R) Rabbit mAb recognizes endogenous levels of total DNMT3B protein. This antibody does not cross-react with DNMT3A or DNMT1.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Phe324 of mouse DNMT3B 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

1. Hermann, A. et al. (2004) *Cell. Mol. Life Sci.* 61, 2571-87.
2. Turek-Plewa, J. and Jagodziński, P.P. (2005) *Cell. Mol. Biol. Lett.* 10, 631-47.
3. Kim, G.D. et al. (2002) *EMBO J.* 21, 4183-95.
4. Fuks, F. et al. (2001) *EMBO J.* 20, 2536-44.
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.
8. Fuks, F. et al. (2003) *Nucleic Acids Res.* 31, 2305-12.
9. Mizuno, S. et al. (2001) *Blood* 97, 1172-9.
10. Robertson, K.D. et al. (1999) *Nucleic Acids Res.* 27, 2291-8.
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

W: Western Blotting **IP:** Immunoprecipitation **IF-IC:** Immunofluorescence (Immunocytochemistry) **ChIP:** Chromatin IP

Cross-Reactivity Key

M: Mouse

Trademarks and Patents

Limited Uses