

DNMT3L (E1Y7Q) Rabbit mAb

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Applications: W, IP	Reactivity: M	Sensitivity: Endogenous	MW (kDa): 49	Source/Isotype: Rabbit IgG	UniProt ID: #Q9CWR8	Entrez-Gene Id: 54427
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Product Usage Information**Application**

Western Blotting
Immunoprecipitation

Dilution

1:1000
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

DNMT3L (E1Y7Q) Rabbit mAb recognizes endogenous levels of total DNMT3L protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Val385 of mouse DNMT3L 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.

DNMT3L is a catalytically inactive regulatory factor for the DNMT3A and DNMT3B *de novo* methyltransferases that is expressed at low levels in embryonic stem cells, testis, ovaries, and thymus (1,2). These *de novo* methyltransferases consist of a heterotetrameric complex containing two molecules of DNMT3L, and either two molecules of DNMT3A or DNMT3B (3). DNMT3L contains an amino-terminal ATRX-DNMT3-DNMT3L (ADD) domain and a carboxy-terminal methyltransferase-like domain (4-7). The methyltransferase-like domain binds to DNMT3A and DNMT3B to stimulate catalytic activity by increasing the binding of S-adenosylmethionine and DNA (4,5). The ADD domain recruits the methyltransferase complex to transcriptionally inactive regions of the genome by binding to unmethylated histone H3 Lys4 (6,7).

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.
- Jia, D. et al. (2007) *Nature* 449, 248-51.
- Holz-Schietinger, C. and Reich, N.O. (2010) *J Biol Chem* 285, 29091-100.
- Suetake, I. et al. (2004) *J Biol Chem* 279, 27816-23.
- Ooi, S.K. et al. (2007) *Nature* 448, 714-7.
- Otani, J. et al. (2009) *EMBO Rep* 10, 1235-41.

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

Cross-Reactivity Key

M: Mouse

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