



## DNA (cytosine-5) methyltransferase (mouse), Dnmt1

### BACKGROUND

DNA methylation is significant for epigenetic regulation of gene expression, X chromosome inactivation, genomic imprinting, and development. Abberant methylation patterns are associated with certain human tumors and developmental abnormalities. In vertebrates, there are two types of DNA methyltransferase activities; *de novo* and maintenance types. Two DNA methyltransferases, Dnmt3a and Dnmt3b, are responsible for the creation of methylation patterns at an early stage of embryogenesis (*de novo*-type), while **Dnmt1** is responsible for the maintenance of methylation patterns during replication. **Dnmt1** favors to methylate the hemimethylated DNA and preferentially methylates one strand of the double-stranded DNA during its processive methylation. This product, mouse **Dnmt1** deleting the N-terminal 290 amino acid residues, was expressed using a baculovirus expression system and purified by Prof. S. Tajima and Dr. I. Suetake of Osaka University (ref.2).

<b>Applications:</b>	1) In vitro methylation of cytosine residues in hemimethylated DNA at 5'....CG...3'. (ref. 1,2) 2) Antigen for anti-mammalian Dnmt1 antibodies.
<b>Size:</b>	300 units (conc.)
<b>Form:</b>	0.5mg protein/ml in 0.2M NaCl, 10mM HEPES (pH 7.4), 50% glycerol
<b>Definition of specific activity:</b>	1 unit is defined as the amount of the enzyme that transfer 1 pmole of methyl group to poly dl-dC substrate during 30 minutes at 37°C
<b>Specific Activity:</b>	17 units/ul
<b>Quality Assurance:</b>	Greater than 95% protein determined by SDS-PAGE (CBB staining) (Fig.1)
<b>Reaction Conditions:</b>	Incubate in 1 x Dnmt1 Reaction Buffer (20mM Tris-HCl, pH7.4, 0.5 mM EDTA, 0.2 mM DTT, 5% glycerol) with 10µM S-adenosylmethionine (SAM) at 37°C
<b>Reagents Supplied with Enzyme:</b>	Dnmt1 Reaction Buffer (5 x) 20mM S-adenosylmethionine (SAM) which was purified by chromatography from the commercial reagent and dissolved in H <sub>2</sub> O. <b>Note: SAM is very unstable. Store at -80°C and use it within 6 months.</b>
<b>Data Link:</b>	UniProtKB/Swiss-Prot <a href="#">P13864</a> (DNMT1_MOUSE)
<b>Storage:</b>	Store at -20°C
<b>References:</b>	This product was used in ref.1. 1) Vilkaitis G <i>et al</i> (2005) "Processive methylation of hemi-methylated CpG sites by mouse Dnmt1 DNA methyl-transferase." <i>J Biol Chem</i> <b>280</b> : 64-72 PMID: <a href="#">15509558</a> 2) Tajima S and Suetake I (1998) "Regulation and function of DNA methylation in vertebrates." <i>J Biochem</i> <b>123</b> : 993-999 Review PMID: <a href="#">9603984</a> (To be continued.....)

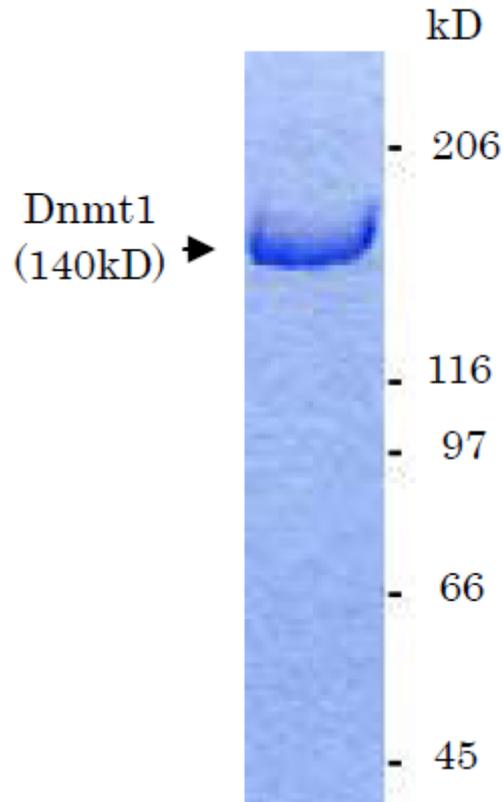


Fig.1 SDS-polyacrylamide gel electrophoresis of recombinant Dnmt1

**Related Products**

BAM-70-201-EX	anti-Dnmt1 (1-248) antibody, affinity-purified (rabbit polyclonal)
BAM-70-203-EX	anti-Dnmt1 (1037-1386) antibody, affinity-purified (rabbit polyclonal)
BAM-70-205-EX	anti-Dnmt3b antibody, affinity-purified (rabbit polyclonal)

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