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# DNMT1 Antibody (S1105) Blocking Peptide
**Synthetic peptide**
**Catalog # BP1032b**

## Specification

### DNMT1 Antibody (S1105) Blocking Peptide - Product Information

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|---|---|
| Primary Accession | P26358 |
| Other Accession | NP_001370 |

### DNMT1 Antibody (S1105) Blocking Peptide - Additional Information

**Gene ID** 1786

**Other Names**
DNA (cytosine-5)-methyltransferase 1, Dnmt1, CXXC-type zinc finger protein 9, DNA methyltransferase HsaI, DNA MTase HsaI, MHsaI, MCMT, DNMT1, AIM, CXXC9, DNMT

**Target/Specificity**
The synthetic peptide sequence used to generate the antibody <a href=/products/AP1032b>AP1032b</a> was selected from the S1105 region of human DNMT1. A 10 to 100 fold molar excess to antibody is recommended. Precise conditions should be optimized for a particular assay.

**Format**
Peptides are lyophilized in a solid powder format. Peptides can be reconstituted in solution using the appropriate buffer as needed.

**Storage**
Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C.

**Precautions**
This product is for research use only. Not for use in diagnostic or therapeutic procedures.

### DNMT1 Antibody (S1105) Blocking Peptide - Protein Information

**Name** DNMT1

**Synonyms** AIM, CXXC9, DNMT

**Function**
Methylates CpG residues. Preferentially methylates hemimethylated DNA. Associates with DNA replication sites in S phase maintaining the methylation pattern in the newly synthesized strand, that is essential for epigenetic inheritance. Associates with chromatin during G2 and M phases to maintain DNA methylation independently of replication. It is responsible for maintaining methylation patterns established in development. DNA methylation is coordinated with methylation of histones. Mediates transcriptional repression by direct binding to HDAC2. In association with DNMT3B and via the recruitment of CTCFL/BORIS, involved in activation of BAG1 gene expression by modulating dimethylation of promoter histone H3 at H3K4 and H3K9. Probably

forms a corepressor complex required for activated KRAS- mediated promoter hypermethylation and transcriptional silencing of tumor suppressor genes (TSGs) or other tumor-related genes in colorectal cancer (CRC) cells (PubMed:<a href="http://www.uniprot.org/citations/24623306" target="_blank">24623306</a>). Also required to maintain a transcriptionally repressive state of genes in undifferentiated embryonic stem cells (ESCs) (PubMed:<a href="http://www.uniprot.org/citations/24623306" target="_blank">24623306</a>). Associates at promoter regions of tumor suppressor genes (TSGs) leading to their gene silencing (PubMed:<a href="http://www.uniprot.org/citations/24623306" target="_blank">24623306</a>). Promotes tumor growth (PubMed:<a href="http://www.uniprot.org/citations/24623306" target="_blank">24623306</a>).

**Cellular Location**
Nucleus. Note=Localized to the perinucleolar region.

**Tissue Location**
Ubiquitous; highly expressed in fetal tissues, heart, kidney, placenta, peripheral blood mononuclear cells, and expressed at lower levels in spleen, lung, brain, small intestine, colon, liver, and skeletal muscle. Isoform 2 is less expressed than isoform 1.

## DNMT1 Antibody (S1105) Blocking Peptide - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Blocking Peptides

## DNMT1 Antibody (S1105) Blocking Peptide - Images

## DNMT1 Antibody (S1105) Blocking Peptide - Background

Methylation of DNA at cytosine residues plays an important role in regulation of gene expression, genomic imprinting and is essential for mammalian development. Hypermethylation of CpG islands in tumor suppressor genes or hypomethylation of bulk genomic DNA may be linked with development of cancer. To date, 3 families of mammalian DNA methyltransferase genes have been identified which include Dnmt1, Dnmt2 and Dnmt3. Dnmt1 is constitutively expressed in proliferating cells and inactivation of this gene causes global demethylation of genomic DNA and embryonic lethality. Dnmt2 is expressed at low levels in adult tissues and its inactivation does not affect DNA methylation or maintenance of methylation. The Dnmt3 family members, Dnmt3a and Dnmt3b, are strongly expressed in ES cells but their expression is down regulated in differentiating ES cells and is low in adult somatic tissue. Dnmt1 co-purifies with the retinoblastoma (Rb) tumour suppressor gene product, E2F1, and HDAC1. Dnmt1 also cooperates with Rb to repress transcription from promoters containing E2Fbinding sites suggesting a link between DNA methylation, histone deacetylase and sequence-specific DNA binding activity, as well as a growth-regulatory pathway that is disrupted in nearly all cancer cells.

## DNMT1 Antibody (S1105) Blocking Peptide - References

Peterson, E.J., et al., Cancer Res. 63(20):6579-6582 (2003).Leu, Y.W., et al., Cancer Res. 63(19):6110-6115 (2003).Saito, Y., et al., Int. J. Cancer 105(4):527-532 (2003).Siedlecki, P., et al., Biochem. Biophys. Res. Commun. 306(2):558-563 (2003).Macaluso, M., et al., Oncogene 22(23):3511-3517 (2003).