

Phospho-Dnmt1(S509) Antibody Blocking peptide
Synthetic peptide
Catalog # BP3648a**Specification**

Phospho-Dnmt1(S509) Antibody Blocking peptide - Product Information

Primary Accession [P26358](#)
Other Accession [NP_001370](#)

Phospho-Dnmt1(S509) Antibody Blocking peptide - Additional Information

Gene ID 1786

Other Names

DNA (cytosine-5)-methyltransferase 1, Dnmt1, CXXC-type zinc finger protein 9, DNA methyltransferase Hsa1, DNA MTase Hsa1, MHsa1, MCMT, DNMT1, AIM, CXXC9, DNMT

Target/Specificity

The synthetic peptide sequence used to generate the antibody [AP3648a](/products/AP3648a) was selected from the region of human Phospho-Dnmt1-pS509. 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.

Phospho-Dnmt1(S509) Antibody 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:24623306). Also required to maintain a transcriptionally repressive state of genes in undifferentiated embryonic stem cells (ESCs) (PubMed:24623306). Associates at promoter regions of tumor suppressor genes (TSGs) leading to their gene silencing (PubMed:24623306). Promotes tumor growth (PubMed:24623306).

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.

Phospho-Dnmt1(S509) Antibody Blocking peptide - Protocols

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

- [Blocking Peptides](#)

Phospho-Dnmt1(S509) Antibody Blocking peptide - Images

Phospho-Dnmt1(S509) Antibody 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 the Dnmt1 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 E2F binding 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.

Phospho-Dnmt1(S509) Antibody Blocking peptide - References

Dion,V., Hum. Mol. Genet. 17 (9), 1306-1317 (2008) Yang,L., Genetics 178 (1), 35-45 (2008)