

Dnmt1 (K-18): sc-10221

BACKGROUND

Methylation at the 5'-position of cytosine is the only known naturally occurring covalent modification of the mammalian genome. DNA methylation requires the enzymatic activity of DNA 5-cytosine methyltransferase (Dnmt) proteins, which catalyze the transfer of a methyl group from S-adenosyl methionine to the 5'-position of cytosines residing in the dinucleotide CpG motif, and this methylation results in transcriptional repression of the target gene. The Dnmt enzymes are encoded by independent genes. Dnmt1 is the most abundant, and it preferentially methylates hemimethylated DNA and coordinates gene expression during development. Additional mammalian Dnmt proteins include Dnmt2 and Dnmt3. Dnmt2 lacks the large N-terminal regulator domain of Dnmt1, is expressed at substantially lower levels in adult tissues, and is likely involved in methylating newly integrated retroviral DNA. Dnmt3a and Dnmt3b are encoded by two distinct genes, but both are abundantly expressed in embryonic stem cells, where they also methylate CpG motifs on DNA.

CHROMOSOMAL LOCATION

Genetic locus: DNMT1 (human) mapping to 19p13.2; Dnmt1 (mouse) mapping to 9 A3.

SOURCE

Dnmt1 (K-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of Dnmt1 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-10221 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Dnmt1 (K-18) is recommended for detection of Dnmt1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Dnmt1 (K-18) is also recommended for detection of Dnmt1 in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for Dnmt1 siRNA (h): sc-35204, Dnmt1 siRNA (m): sc-35203, Dnmt1 siRNA (r): sc-270085, Dnmt1 shRNA Plasmid (h): sc-35204-SH, Dnmt1 shRNA Plasmid (m): sc-35203-SH, Dnmt1 shRNA Plasmid (r): sc-270085-SH, Dnmt1 shRNA (h) Lentiviral Particles: sc-35204-V, Dnmt1 shRNA (m) Lentiviral Particles: sc-35203-V and Dnmt1 shRNA (r) Lentiviral Particles: sc-270085-V.

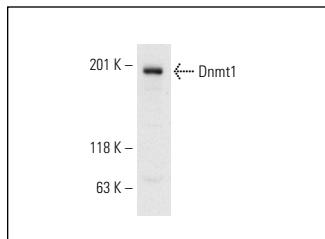
Molecular Weight of Dnmt1: 184 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, HeLa nuclear extract: sc-2120 or F9 cell lysate: sc-2245.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

DATA



Dnmt1 (K-18): sc-10221. Western blot analysis of Dnmt1 expression in F9 whole cell lysate.

SELECT PRODUCT CITATIONS

- McCabe, M.T., et al. 2005. Regulation of DNA methyltransferase 1 by the pRb/E2F1 pathway. *Cancer Res.* 65: 3624-3632.
- An, H.J., et al. 2011. Silencing of BNIP3 results from promoter methylation by DNA methyltransferase 1 induced by the mitogen-activated protein kinase pathway. *Mol. Cells* 31: 579-583.
- Thaler, R., et al. 2012. DMSO is a strong inducer of DNA hydroxymethylation in pre-osteoblastic MC3T3-E1 cells. *Epigenetics* 7: 635-651.
- Hervouet, E., et al. 2012. Kinetics of DNA methylation inheritance by the Dnmt1-including complexes during the cell cycle. *Cell Div.* 7: 1-11.
- Yang, P.M., et al. 2013. Zebularine inhibits tumorigenesis and stemness of colorectal cancer via p53-dependent endoplasmic reticulum stress. *Sci. Rep.* 3: 3219.
- Pacaud, R., et al. 2014. The DNMT1/PCNA/UHRF1 disruption induces tumorigenesis characterized by similar genetic and epigenetic signatures. *Sci. Rep.* 4: 4230.
- Zheng, J., et al. 2014. Curcumin up-regulates phosphatase and tensin homologue deleted on chromosome 10 through microRNA-mediated control of DNA methylation—a novel mechanism suppressing liver fibrosis. *FEBS J.* 281: 88-103.
- Cheray, M., et al. 2014. Specific inhibition of DNMT1/CFP1 reduces cancer phenotypes and enhances chemotherapy effectiveness. *Epigenomics* 6: 267-275.

RESEARCH USE

For research use only, not for use in diagnostic procedures.



Try **Dnmt1 (H-12): sc-271729** or **Dnmt1 (D-9): sc-514784**, our highly recommended monoclonal alternatives to Dnmt1 (K-18). Also, for AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647 conjugates, see **Dnmt1 (H-12): sc-271729**.