

Dnmt1 (H-300): sc-20701

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 (H-300) is a rabbit polyclonal antibody raised against amino acids 1317-1616 mapping near the C-terminus 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.

Available as agarose conjugate for immunoprecipitation, sc-20701 AC, 500 µg/0.25 ml agarose in 1 ml.

APPLICATIONS

Dnmt1 (H-300) 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), immunohistochemistry (including paraffin-embedded sections) (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 (H-300) is also recommended for detection of Dnmt1 in additional species, including equine, bovine and porcine.

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

Molecular Weight of Dnmt1: 184 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200 or A549 cell lysate: sc-2413.

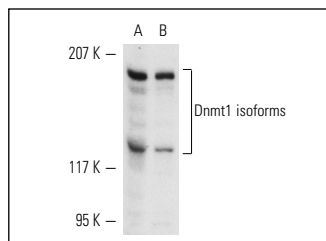
RESEARCH USE

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

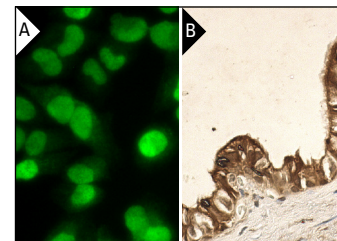
STORAGE

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

DATA



Dnmt1 (H-300): sc-20701. Western blot analysis of Dnmt1 isoform expression in HeLa (A) and A549 (B) whole cell lysates.



Dnmt1 (H-300): sc-20701. Immunofluorescence staining of formalin-fixed HeLa cells showing nuclear localization. Kindly provided by Yang Xiang, Ph.D., Division of Newborn Medicine, Boston Children's Hospital, Cell Biology Department, Harvard Medical School (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing nuclear and cytoplasmic staining of cells in seminiferous ducts (B).

SELECT PRODUCT CITATIONS

- Lin, C.H., et al. 2001. Genome-wide hypomethylation in hepatocellular carcinogenesis. *Cancer Res.* 61: 4238-4243.
- Liu, W.B., et al. 2011. Aberrant methylation accounts for cell adhesion-related gene silencing during 3-methylcholanthrene and diethylnitrosamine induced multistep rat lung carcinogenesis associated with overexpression of DNA methyltransferases 1 and 3a. *Toxicol. Appl. Pharmacol.* 251: 70-78.
- Cui, S., et al. 2011. Nuclear receptors TR2 and TR4 recruit multiple epigenetic transcriptional corepressors that associate specifically with the embryonic β -type globin promoters in differentiated adult erythroid cells. *Mol. Cell. Biol.* 31: 3298-3311.
- Zhu, Q., et al. 2012. Increased expression of DNA methyltransferase 1 and 3a in human temporal lobe epilepsy. *J. Mol. Neurosci.* 46: 420-426.
- Huang, H., et al. 2014. Role of poly(ADP-ribose) glycohydrolase silencing in DNA hypomethylation induced by benzo(a)pyrene. *Biochem. Biophys. Res. Commun.* 452: 708-714.
- Yoshioka, H., et al. 2015. The dynamics of DNA methylation and hydroxymethylation during amelogenesis. *Histochem. Cell Biol.* 144: 471-478.
- Fogarty, N.M., et al. 2015. Different epigenetic states define syncytiotrophoblast and cytotrophoblast nuclei in the trophoblast of the human placenta. *Placenta* 36: 796-802.



Try **Dnmt1 (H-12): sc-271729** or **Dnmt1 (D-9): sc-514784**, our highly recommended monoclonal alternatives to Dnmt1 (H-300). Also, for AC, HRP, FITC, PE, Alexa Fluor[®] 488 and Alexa Fluor[®] 647 conjugates, see **Dnmt1 (H-12): sc-271729**.