

Dnmt1 (18): sc-135887

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.

REFERENCES

- Yoder, J.A., et al. 1997. DNA (cytosine-5)-methyltransferases in mouse cells and tissues. Studies with a mechanism-based probe. *J. Mol. Biol.* 270: 385-395.
- Okano, M., et al. 1998. Dnmt2 is not required for *de novo* and maintenance methylation of viral DNA in embryonic stem cells. *Nucleic Acids Res.* 26: 2536-2540.
- Walsh, C.P. and Bestor, T.H. 1999. Cytosine methylation and mammalian development. *Genes Dev.* 13: 26-34.

CHROMOSOMAL LOCATION

Genetic locus: DNMT1 (human) mapping to 19p13.2.

SOURCE

Dnmt1 (18) is a mouse monoclonal antibody raised against amino acids 476-670 of Dnmt1 of human origin.

PRODUCT

Each vial contains 50 µg IgG_{2b} in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Dnmt1 (18) is recommended for detection of Dnmt1 of 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)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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

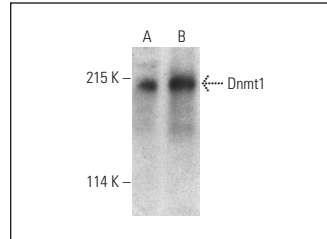
Molecular Weight of Dnmt1: 184 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, HeLa whole cell lysate: sc-2200 or Jurkat whole cell lysate: sc-2204.

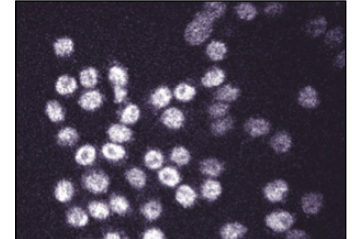
STORAGE

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

DATA



Dnmt1 (18): sc-135887. Western blot analysis of Dnmt1 expression in HeLa (A) and Jurkat (B) whole cell lysates.



Dnmt1 (18): sc-135887. Immunofluorescence staining of HeLa cells showing nuclear staining.

SELECT PRODUCT CITATIONS

- Nagaraju, G.P., et al. 2013. Novel synthetic curcumin analogues EF31 and UBS109 are potent DNA hypomethylating agents in pancreatic cancer. *Cancer Lett.* 341: 195-203.
- Qin, L., et al. 2014. Reversible epigenetic regulation of 14-3-3 α expression in acquired gemcitabine resistance by uhrf1 and DNA methyltransferase 1. *Mol. Pharmacol.* 86: 561-569.
- Zhu, B., et al. 2017. Atorvastatin treatment modulates p16 promoter methylation to regulate p16 expression. *FEBS J.* 284: 1868-1881.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.



See **Dnmt1 (H-12): sc-271729** for Dnmt1 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.