SANTA CRUZ BIOTECHNOLOGY, INC.

Dnmt1 (60B1220): sc-52919

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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. 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

1. 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.
2. 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.
3. Hsieh, C.L. 1999. *In vivo* activity of murine *de novo* methyltransferases Dnmt3a and Dnmt3b. Mol. Cell. Biol. 19: 8211-8218.

CHROMOSOMAL LOCATION

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

SOURCE

Dnmt1 (60B1220) is a mouse monoclonal antibody raised against amino acids 637-651 of Dnmt1 of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

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

APPLICATIONS

Dnmt1 (60B1220) is recommended for detection of Dnmt1 of mouse 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 immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for Dnmt1 siRNA (h): sc-35204, Dnmt1 siRNA (m): sc-35203, Dnmt1 siRNA (h2): sc-156049, Dnmt1 shRNA Plasmid (h): sc-35204-SH, Dnmt1 shRNA Plasmid (m): sc-35203-SH, Dnmt1 shRNA Plasmid (h2): sc-156049-SH, Dnmt1 shRNA (h) Lentiviral Particles: sc-35204-V, Dnmt1 shRNA (m) Lentiviral Particles: sc-35203-V and Dnmt1 shRNA (h2) Lentiviral Particles: sc-156049-V.

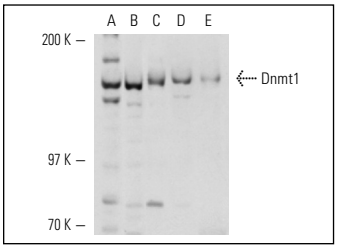
Molecular Weight of Dnmt1: 184 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, HeLa nuclear extract: sc-2120 or T24 cell lysate: sc-2292.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-mouse IgG-FITC: sc-2010 (dilution range: 1:100-1:400) or goat anti-mouse IgG-TR: sc-2781 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 4) Immunohistochemistry: use ImmunoCruz™: sc-2050 or ABC: sc-2017 mouse IgG Staining Systems.

DATA



Dnmt1 (60B1220): sc-52919. Western blot analysis of Dnmt1 expression in HeLa (**A**) and NIH/3T3 (**B**) nuclear extracts and T24 (**C**) and HeLa (**D**) whole cell lysates and mouse lymph node tissue extract (**E**).

SELECT PRODUCT CITATIONS

1. Wee, G., et al. 2007. Epigenetic alteration of the donor cells does not recapitulate the reprogramming of DNA methylation in cloned embryos. Reproduction 134: 781-787.