SANTA CRUZ BIOTECHNOLOGY, INC.

Dnmt2 (K-17): sc-10227

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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, 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

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.
4. Walsh, C.P. and Bestor, T.H. 1999. Cytosine methylation and mammalian development. Genes Dev. 13: 26-34.
5. Cardoso, M.C. and Leonhardt, H. 1999. DNA methyltransferase is actively retained in the cytoplasm during early development. J. Cell Biol. 147: 25-32.
6. Bigey, P., et al. 2000. Transcriptional regulation of the human DNA Methyltransferase (Dnmt1) gene. Gene 242: 407-418.
7. Fuks, F., et al. 2000. DNA methyltransferase Dnmt1 associates with histone deacetylase activity. Nat. Genet. 24: 88-91.

CHROMOSOMAL LOCATION

Genetic locus: DNMT2 (human) mapping to 10p13; Dnmt2 (mouse) mapping to 2 A1.

SOURCE

Dnmt2 (K-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of Dnmt2 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-10227 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Dnmt2 (K-17) is recommended for detection of Dnmt2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

Dnmt2 (K-17) is also recommended for detection of Dnmt2 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for Dnmt2 siRNA (h): sc-35205, Dnmt2 siRNA (m): sc-35206, Dnmt2 siRNA (r): sc-270086, Dnmt2 shRNA Plasmid (h): sc-35205-SH, Dnmt2 shRNA Plasmid (m): sc-35206-SH, Dnmt2 shRNA Plasmid (r): sc-270086-SH, Dnmt2 shRNA (h) Lentiviral Particles: sc-35205-V, Dnmt2 shRNA (m) Lentiviral Particles: sc-35206-V and Dnmt2 shRNA (r) Lentiviral Particles: sc-270086-V.

Molecular Weight of Dnmt2: 45 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Chadwick, B.P., et al. 2002. Cell cycle-dependent localization of macroH2A in chromatin of the inactive X chromosome. J. Cell Biol. 157: 1113-1123.
2. Wang, Y., et al. 2006. Association between enhanced type I collagen expression and epigenetic repression of the FLI1 gene in scleroderma fibroblasts. Arthritis Rheum. 54: 2271-2279.

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.