SANTA CRUZ BIOTECHNOLOGY, INC.

Dnmt3b (52A1018): sc-52922

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, 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.

CHROMOSOMAL LOCATION

Genetic locus: DNMT3B (human) mapping to 20q11.21; Dnmt3b (mouse) mapping to 2 H1.

SOURCE

Dnmt3b (52A1018) is a mouse monoclonal antibody raised against recombinant Dnmt3b of mouse origin.

PRODUCT

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

APPLICATIONS

Dnmt3b (52A1018) is recommended for detection of Dnmt3b 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)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500); non cross-reactive with Dnmt3a.

Suitable for use as control antibody for Dnmt3b siRNA (h): sc-37759, Dnmt3b siRNA (m): sc-37760, Dnmt3b shRNA Plasmid (h): sc-37759-SH, Dnmt3b shRNA Plasmid (m): sc-37760-SH, Dnmt3b shRNA (h) Lentiviral Particles: sc-37759-V and Dnmt3b shRNA (m) Lentiviral Particles: sc-37760-V.

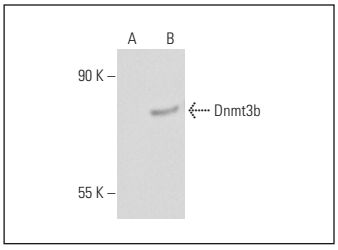
Molecular Weight of Dnmt3b: 97 kDa.

Positive Controls: Dnmt3b (h2): 293T Lysate: sc-128484, NIH/3T3 whole cell lysate: sc-2210 or K-562 nuclear extract: sc-2130.

STORAGE

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

DATA



Dnmt3b (52A1018): sc-52922. Western blot analysis of Dnmt3b expression in non-transfected: sc-117752 (**A**) and human Dnmt3b transfected: sc-128484 (**B**) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Yossifoff, M., et al. 2008. Dynamic changes in DNA methylation during thermal control establishment affect CREB binding to the brain-derived neurotrophic factor promoter. Eur. J. Neurosci. 28: 2267-2277.
2. Lal, G., et al. 2009. Epigenetic regulation of FOXP3 expression in regulatory T cells by DNA methylation. J. Immunol. 182: 259-273.
3. Ooi, S.K., et al. 2010. Dynamic instability of genomic methylation patterns in pluripotent stem cells. Epigenetics Chromatin 3: 17.
4. 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.
5. Xia, B., et al. 2016. Repression of biotin-related proteins by benzo[a]pyrene-induced epigenetic modifications in human bronchial epithelial cells. Int. J. Toxicol. 35: 336-343.

RESEARCH USE

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

PROTOCOLS

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

CONJUGATES

See **Dnmt3b (G-9): sc-376043** for Dnmt3b antibody conjugates, including AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647.