SANTA CRUZ BIOTECHNOLOGY, INC.

Dnmt3a (A-10): sc-373905

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.

CHROMOSOMAL LOCATION

Genetic locus: DNMT3A (human) mapping to 2p23.3; Dnmt3a (mouse) mapping to 12 A1.1.

SOURCE

Dnmt3a (A-10) is a mouse monoclonal antibody raised against amino acids 1-295 of Dnmt3a of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Dnmt3a (A-10) is available conjugated to agarose (sc-373905 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-373905 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-373905 PE), fluorescein (sc-373905 FITC), Alexa Fluor® 488 (sc-373905 AF488), Alexa Fluor® 546 (sc-373905 AF546), Alexa Fluor® 594 (sc-373905 AF594) or Alexa Fluor® 647 (sc-373905 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-373905 AF680) or Alexa Fluor® 790 (sc-373905 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Dnmt3a (A-10) is recommended for detection of Dnmt3a of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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).

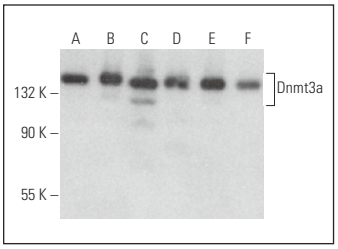
Suitable for use as control antibody for Dnmt3a siRNA (h): sc-37757, Dnmt3a siRNA (m): sc-37758, Dnmt3a siRNA (r): sc-270087, Dnmt3a shRNA Plasmid (h): sc-37757-SH, Dnmt3a shRNA Plasmid (m): sc-37758-SH, Dnmt3a shRNA Plasmid (r): sc-270087-SH, Dnmt3a shRNA (h) Lentiviral Particles: sc-37757-V, Dnmt3a shRNA (m) Lentiviral Particles: sc-37758-V and Dnmt3a shRNA (r) Lentiviral Particles: sc-270087-V.

Molecular Weight of Dnmt3a: 100-130 kDa.

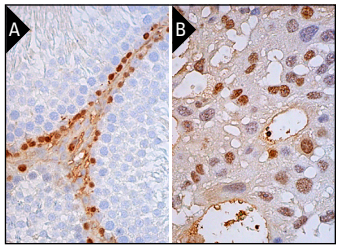
STORAGE

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

DATA



Dnmt3a (A-10): sc-373905. Western blot analysis of Dnmt3a expression in F9 (**A**), NIH/3T3 (**B**), RAW 264.7 (**C**), Jurkat (**D**), 3T3-L1 (**E**) and Hep G2 (**F**) whole cell lysates.



Dnmt3a (A-10): sc-373905. Immunoperoxidase staining of formalin fixed, paraffin-embedded rat testis tissue showing nuclear staining of subset of cells in seminiferous ducts (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded rat placenta tissue showing nuclear staining of decidual cells (**B**).

SELECT PRODUCT CITATIONS

1. Palamarchuk, A., et al. 2012. Tcl1 protein functions as an inhibitor of *de novo* DNA methylation in B-cell chronic lymphocytic leukemia (CLL). Proc. Natl. Acad. Sci. USA 109: 2555-2560.
2. 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.
3. Wang, D., et al. 2015. Hypermethylation of the Keap1 gene inactivates its function, promotes Nrf2 nuclear accumulation, and is involved in arsenite-induced human keratinocyte transformation. Free Radic. Biol. Med. 89: 209-219.
4. Wu, F., et al. 2018. Procaine stimulates aquaporin-5 expression in human salivary gland ductal cells via the suppression of DNA methyltransferase-1. Mol. Med. Rep. 17: 7996-8002.
5. Starlard-Davenport, A., et al. 2019. MIR29B mediates epigenetic mechanisms of HBG gene activation. Br. J. Haematol. 186: 91-100.
6. Tsuboi, M., et al. 2020. Chromate exposure induces DNA hypermethylation of the mismatch repair gene MLH1 in lung cancer. Mol. Carcinog. 59: 24-31.
7. Zhang, J., et al. 2021. SPOP mutation induces DNA methylation via stabilizing GLP/G9a. Nat. Commun. 12: 5716.
8. Fan, X., et al. 2021. Transcriptional progression during meiotic prophase I reveals sex-specific features and X chromosome dynamics in human fetal female germline. PLoS Genet. 17: e1009773.

RESEARCH USE

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