SANTA CRUZ BIOTECHNOLOGY, INC.

Dnmt3a (C-12): sc-365769

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 (C-12) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 42-67 near the N-terminus of Dnmt3a of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Dnmt3a (C-12) is available conjugated to agarose (sc-365769 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-365769 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365769 PE), fluorescein (sc-365769 FITC), Alexa Fluor® 488 (sc-365769 AF488), Alexa Fluor® 546 (sc-365769 AF546), Alexa Fluor® 594 (sc-365769 AF594) or Alexa Fluor® 647 (sc-365769 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365769 AF680) or Alexa Fluor® 790 (sc-365769 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-365769 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

PROTOCOLS

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

APPLICATIONS

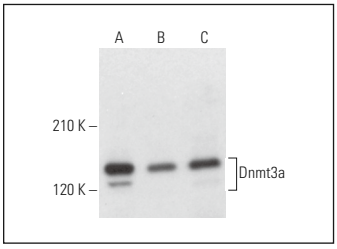
Dnmt3a (C-12) is recommended for detection of Dnmt3a of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 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.

Positive Controls: P19 cell lysate: sc-24760, F9 cell lysate: sc-2245 or C6 whole cell lysate: sc-364373.

DATA



Dnmt3a (C-12): sc-365769. Western blot analysis of Dnmt3a expression in P19 (**A**), F9 (**B**) and C6 (**C**) whole cell lysates.

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. Hao, J., et al. 2018. Circulating adipose fatty acid binding protein is a new link underlying obesity-associated breast/mammary tumor development. Cell Metab. 28: 689-705.e5.
3. Kadam, P., et al. 2019. Does co-transplantation of mesenchymal and spermatogonial stem cells improve reproductive efficiency and safety in mice? Stem Cell Res. Ther. 10: 310.
4. Huang, K.C., et al. 2020. Decitabine augments chemotherapy-induced PD-L1 upregulation for PD-L1 blockade in colorectal cancer. Cancers 12: 462.
5. Behera, J., et al. 2021. Hydrogen sulfide prevents ethanol-induced ZO-1 CpG promoter hypermethylation-dependent vascular permeability via miR-218/DNMT3a axis. J. Cell. Physiol. 236: 6852-6867.

RESEARCH USE

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