

Dnmt1 (H-12): sc-271729

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

SOURCE

Dnmt1 (H-12) is a mouse monoclonal antibody raised against amino acids 1317-1616 mapping near the C-terminus of Dnmt1 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Dnmt1 (H-12) is available conjugated to agarose (sc-271729 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271729 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271729 PE), fluorescein (sc-271729 FITC), Alexa Fluor® 488 (sc-271729 AF488), Alexa Fluor® 546 (sc-271729 AF546), Alexa Fluor® 594 (sc-271729 AF594) or Alexa Fluor® 647 (sc-271729 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271729 AF680) or Alexa Fluor® 790 (sc-271729 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Dnmt1 (H-12) is recommended for detection of Dnmt1 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 Dnmt1 siRNA (h): sc-35204, Dnmt1 siRNA (m): sc-35203, Dnmt1 shRNA Plasmid (h): sc-35204-SH, Dnmt1 shRNA Plasmid (m): sc-35203-SH, Dnmt1 shRNA (h) Lentiviral Particles: sc-35204-V and Dnmt1 shRNA (m) Lentiviral Particles: sc-35203-V.

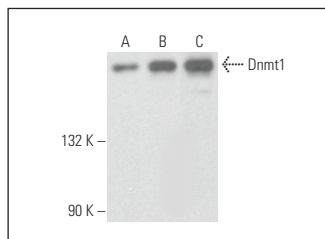
Molecular Weight of Dnmt1: 184 kDa.

Positive Controls: Ramos cell lysate: sc-2216.

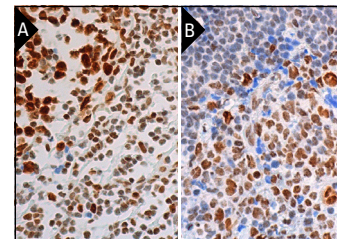
STORAGE

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

DATA



Dnmt1 (H-12): sc-271729. Western blot analysis of Dnmt1 expression in Jurkat (A), Raji (B) and Ramos (C) whole cell lysates.



Dnmt1 (H-12): sc-271729. Immunoperoxidase staining of formalin fixed, paraffin-embedded human tonsil (A) and human lymph node (B) tissue showing nuclear staining of cells in germinal center and cells in non-germinal center.

SELECT PRODUCT CITATIONS

- Cheng, M.X., et al. 2011. Astragaloside IV protects against ischemia reperfusion in a murine model of orthotopic liver transplantation. *Transplant. Proc.* 43: 1456-1461.
- Yang, L.H., et al. 2013. Axin gene methylation status correlates with radiosensitivity of lung cancer cells. *BMC Cancer* 13: 368.
- 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.
- Wang, F., et al. 2016. RASSF10 is an epigenetically inactivated tumor suppressor and independent prognostic factor in hepatocellular carcinoma. *Oncotarget* 7: 4279-4297.
- 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.
- Lin, Y., et al. 2017. Emodin promotes the arrest of human lymphoma Raji cell proliferation through the UHRF1-Dnmt3a-ΔNp73 pathways. *Mol. Med. Rep.* 16: 6544-6551.
- Lewinska, A., et al. 2018. Reduced levels of methyltransferase Dnmt2 sensitize human fibroblasts to oxidative stress and DNA damage that is accompanied by changes in proliferation-related miRNA expression. *Redox Biol.* 14: 20-34.
- Bu, X., et al. 2018. Inhibition of DNA methyltransferase 1 by RNA interference reverses epithelial-mesenchymal transition in highly metastatic 95D lung cancer cells by inhibiting the Wnt signaling pathway. *Oncol. Lett.* 15: 9242-9250.

RESEARCH USE

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

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