SANTA CRUZ BIOTECHNOLOGY, INC.

Dnmt3L (H-85): sc-20705

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, thereby repressing expression of the target gene. Dnmt3L (DNA (cytosine-5)-methyltransferase 3-like) is a 387 amino acid protein that contains one ADD-type zinc finger and is a member of the Dnmt family. Localized to the nucleus and expressed at lows levels in thymus, testis and ovary, Dnmt3L does not exhibit DNA methyltransferase activity, but is able to stimulate *de novo* methylation by Dnmt3 and is thought to play a key role in the establishment of genomic imprints. Additionally, Dnmt3L interacts with histone deacetylase 1 (HDAC1) and, through this interaction, mediates transcriptional repression. Multiple isoforms of Dnmt3L exist due to alternative splicing events.

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. Walsh, C.P. and Bestor, T.H. 1999. Cytosine methylation and mammalian development. Genes Dev. 13: 26-34.
3. Hsieh, C.L. 1999. *In vivo* activity of murine *de novo* methyltransferases, Dnmt3a and Dnmt3b. Mol. Cell. Biol. 19: 8211-8218.
4. Fuks, F., et al. 2000. DNA methyltransferase Dnmt1 associates with histone deacetylase activity. Nat. Genet. 24: 88-91.
5. Aapola, U., et al. 2000. Isolation and initial characterization of a novel zinc finger gene, DNMT3L, on 21q22.3, related to the cytosine-5-methyltransferase 3 gene family. Genomics 65: 293-298.
6. Suetake, I., et al. 2006. Stimulation effect of Dnmt3L on the DNA methylation activity of Dnmt3a2. J. Biochem. 140: 553-559.
7. Ooi, S.K., et al. 2007. DNMT3L connects unmethylated Lysine 4 of Histone H3 to *de novo* methylation of DNA. Nature 448: 714-717.

CHROMOSOMAL LOCATION

Genetic locus: DNMT3L (human) mapping to 21q22.3; Dnmt3l (mouse) mapping to 10 C1.

SOURCE

Dnmt3L (H-85) is a rabbit polyclonal antibody raised against amino acids 303-387 of Dnmt3L 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.

RESEARCH USE

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

APPLICATIONS

Dnmt3L (H-85) is recommended for detection of Dnmt3L of human and, to a lesser extent, mouse and rat 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)], 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).

Suitable for use as control antibody for Dnmt3L siRNA (h): sc-37761, Dnmt3L siRNA (m): sc-37762, Dnmt3L shRNA Plasmid (h): sc-37761-SH, Dnmt3L shRNA Plasmid (m): sc-37762-SH, Dnmt3L shRNA (h) Lentiviral Particles: sc-37761-V and Dnmt3L shRNA (m) Lentiviral Particles: sc-37762-V.

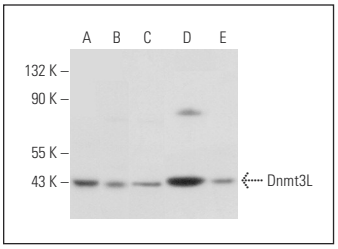
Molecular Weight of Dnmt3L: 43 kDa.

Positive Controls: ES-2 cell lysate: sc-24674, Hep G2 cell lysate: sc-2227 or K-562 whole cell lysate: sc-2203.

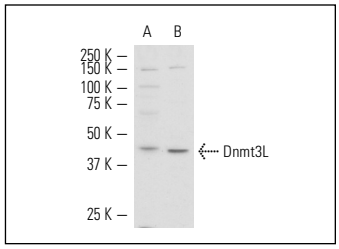
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



Dnmt3L (H-85): sc-20705. Western blot analysis of Dnmt3L expression in Hep G2 (**A**), HL-60 (**B**), K-562 (**C**) and PC-3 (**D**) whole cell lysates and Hep G2 nuclear extract (**E**).



Dnmt3L (H-85): sc-20705. Western blot analysis of Dnmt3L expression in mouse testis tissue extract (**A**) and ES-2 whole cell lysate (**B**).

STORAGE

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