SANTA CRUZ BIOTECHNOLOGY, INC.

Dnmt3L (A-4): sc-393603

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.

CHROMOSOMAL LOCATION

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

SOURCE

Dnmt3L (A-4) is a mouse monoclonal antibody raised against amino acids 303-387 of Dnmt3L of human origin.

PRODUCT

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

Dnmt3L (A-4) is available conjugated to agarose (sc-393603 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-393603 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-393603 PE), fluorescein (sc-393603 FITC), Alexa Fluor® 488 (sc-393603 AF488), Alexa Fluor® 546 (sc-393603 AF546), Alexa Fluor® 594 (sc-393603 AF594) or Alexa Fluor® 647 (sc-393603 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-393603 AF680) or Alexa Fluor® 790 (sc-393603 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Dnmt3L (A-4) is recommended for detection of Dnmt3L 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) 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.

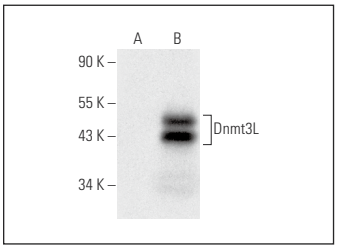
Molecular Weight of Dnmt3L: 43 kDa.

Positive Controls: Dnmt3L (h): 293 Lysate: sc-173143.

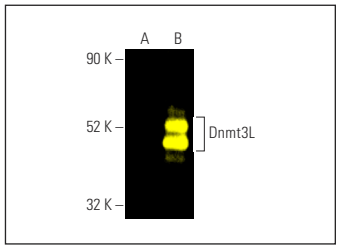
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 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 m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



Dnmt3L (A-4): sc-393603. Western blot analysis of Dnmt3L expression in non-transfected: sc-110760 (**A**) and human Dnmt3L transfected: sc-173143 (**B**) 293 whole cell lysates.



Dnmt3L (A-4): sc-393603. Fluorescent western blot analysis of Dnmt3L expression in non-transfected: sc-110760 (**A**) and human Dnmt3L transfected: sc-173143 (**B**) 293 whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgG Fc BP-CFL 488: sc-533653.

SELECT PRODUCT CITATIONS

1. 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.
2. Nowialis, P., et al. 2019. Catalytically inactive Dnmt3b rescues mouse embryonic development by accessory and repressive functions. Nat. Commun. 10: 4374.
3. Palomares, K.T., et al. 2021. Fetal exosomal platelet-activating factor triggers functional progesterone withdrawal in human placenta. Reprod. Sci. 28: 252-262.
4. Laufer, B.I., et al. 2021. Stable Dnmt3L overexpression in SH-SY5Y neurons recreates a facet of the genome-wide Down syndrome DNA methylation signature. Epigenetics Chromatin 14: 13.
5. Zhang, H., et al. 2022. Epigenetic integrity of paternal imprints enhances the developmental potential of androgenetic haploid embryonic stem cells. Protein Cell 13: 102-119.

STORAGE

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

RESEARCH USE

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