

# Dnmt3b (2280C3a): sc-81252

## 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: DNMT3B (human) mapping to 20q11.21; Dnmt3b (mouse) mapping to 2 H1.

## SOURCE

Dnmt3b (2280C3a) is a mouse monoclonal antibody raised against a recombinant protein corresponding to an internal region of Dnmt3b of human origin.

## PRODUCT

Each vial contains 100 µg IgG<sub>2b</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 1.0% stabilizer protein.

## APPLICATIONS

Dnmt3b (2280C3a) is recommended for detection of Dnmt3b of mouse, rat and human 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)] and flow cytometry (1 µg per 1 x 10<sup>6</sup> cells).

Suitable for use as control antibody for Dnmt3b siRNA (h): sc-37759, Dnmt3b siRNA (m): sc-37760, Dnmt3b siRNA (r): sc-270020, Dnmt3b shRNA Plasmid (h): sc-37759-SH, Dnmt3b shRNA Plasmid (m): sc-37760-SH, Dnmt3b shRNA Plasmid (r): sc-270020-SH, Dnmt3b shRNA (h) Lentiviral Particles: sc-37759-V, Dnmt3b shRNA (m) Lentiviral Particles: sc-37760-V and Dnmt3b shRNA (r) Lentiviral Particles: sc-270020-V.

Molecular Weight of Dnmt3b: 97 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, HeLa whole cell lysate: sc-2200 or T-47D cell lysate: sc-2293.

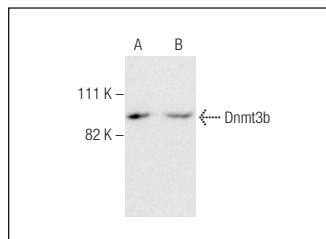
## STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

## RESEARCH USE

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

## DATA



Dnmt3b (2280C3a): sc-81252. Western blot analysis of Dnmt3b expression in K-562 (A) and T-47D (B) whole cell lysates.

## SELECT PRODUCT CITATIONS

1. Fuso, A., et al. 2010. DNA methylase and demethylase activities are modulated by one-carbon metabolism in Alzheimer's disease models. *J. Nutr. Biochem.* 22: 242-251.
2. 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.
3. Shamma, A., et al. 2013. ATM mediates pRB function to control Dnmt1 protein stability and DNA methylation. *Mol. Cell. Biol.* 33: 3113-3124.
4. Chang, L.C., et al. 2014. YC-1 inhibits proliferation of breast cancer cells by down-regulating EZH2 expression via activation of c-Cbl and ERK. *Br. J. Pharmacol.* 171: 4010-4025.
5. Nakamura, K., et al. 2015. DNA methyltransferase inhibitor zebularine induces human cholangiocarcinoma cell death through alteration of DNA methylation status. *PLoS ONE* 10: e0120545.
6. Guo, C., et al. 2017. DNA methylation protects against cisplatin-induced kidney injury by regulating specific genes, including interferon regulatory factor 8. *Kidney Int.* 92: 1194-1205.
7. Chiang, S.K., et al. 2019. DOCK1 regulates growth and motility through the RRP1B-claudin-1 pathway in claudin-low breast cancer cells. *Cancers* 11: 1762.
8. Zhang, T., et al. 2021. Phenethyl isothiocyanate reduces breast cancer stem cell-like properties by epigenetic reactivation of CDH1. *Oncol. Rep.* 45: 337-348.
9. Dong, D., et al. 2022. FUNDC1 induces apoptosis and autophagy under oxidative stress via PI3K/Akt/mTOR pathway in cataract lens cells. *Curr. Eye Res.* 47: 547-554.



See **Dnmt3b (G-9): sc-376043** for Dnmt3b antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.