SANTA CRUZ BIOTECHNOLOGY, INC.

PRMT1 (PRMT1-171): sc-59648

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

A class of proteins termed type 1 protein arginine N-methyltransferase (PRMT) enzymes contribute to posttranslational modification of RNA-binding proteins, but differ in substrate specificities, oligomerization properties and subcellular localization. PRMT1, the predominant form in mammalian cells, is located in the nucleus, while PRMT3 is present in the cytoplasm. At the carboxy-terminus, interleukin enhancer-binding factor 3 (ILF3) binds PRMT1, thereby regulating PRMT1 activitiy. Alternative mRNA splicing of the PRMT gene results in three isoforms of PRMT1 that differ in their amino-terminus regions. All three splice variants of PRMT1 are enzymatically active. PRMT3 recognizes and binds to RNA-associated substrates with a zinc-finger domain in its amino-terminus. The zinc-liganded form of this domain is required for the enzyme to recognize RNA-associated substrates.

REFERENCES

1. Tang, J., et al. 1998. PRMT3, a type 1 protein arginine N-methyltransferase that differs from PRMT1 in its oligomerization, subcellular localization, substrate specificity and regulation. J. Biol. Chem. 273: 16935-16945.
2. Scorilas, A., et al. 2000. Genomic organization, physical mapping and expression analysis of the human protein arginine methyltransferase 1 gene. Biochem. Biophys. Res. Commun. 278: 349-359.

CHROMOSOMAL LOCATION

Genetic locus: PRMT1 (human) mapping to 19q13.33; Prmt1 (mouse) mapping to 7 B4.

SOURCE

PRMT1 (PRMT1-171) is a mouse monoclonal antibody raised against full length PRMT1 of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

PRMT1 (PRMT1-171) is recommended for detection of PRMT1 of mouse, rat, human, bovine and canine 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 solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with PRMT2, 3, 4, or 5.

Suitable for use as control antibody for PRMT1 siRNA (h): sc-41069, PRMT1 siRNA (m): sc-41070, PRMT1 shRNA Plasmid (h): sc-41069-SH, PRMT1 shRNA Plasmid (m): sc-41070-SH, PRMT1 shRNA (h) Lentiviral Particles: sc-41069-V and PRMT1 shRNA (m) Lentiviral Particles: sc-41070-V.

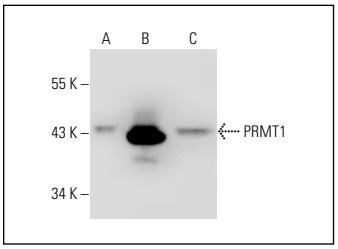
Molecular Weight of PRMT1: 42-45 kDa.

Positive Controls: PRMT1 (m): 293T Lysate: sc-127382, PC-3 cell lysate: sc-2220 or HeLa whole cell lysate: sc-2200.

STORAGE

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

DATA



PRMT1 (PRMT1-171): sc-59648. Western blot analysis of PRMT1 expression in non-transfected 293T: sc-117752 (**A**), mouse PRMT1 transfected 293T: sc-127382 (**B**) and PC-3 (**C**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Okumura, F., et al. 2011. TRIM8 regulates Nanog via Hsp90β-mediated nuclear translocation of Stat3 in embryonic stem cells. Biochim. Biophys. Acta 1813: 1784-1792.
2. Kanade, S.R. and Eckert, R.L. 2012. Protein arginine methyltransferase 5 (PRMT5) signaling suppresses protein kinase Cδ- and p38δ-dependent signaling and keratinocyte differentiation. J. Biol. Chem. 287: 7313-7323.
3. Leonard, S., et al. 2012. Arginine methyltransferases are regulated by Epstein-Barr virus in B cells and are differentially expressed in Hodgkin's lymphoma. Pathogens 1: 52-64.
4. Bao, X., et al. 2017. CSNK1a1 regulates PRMT1 to maintain the progenitor state in self-renewing somatic tissue. Dev. Cell 43: 227-239.e5.
5. Bhuripanyo, K., et al. 2018. Identifying the substrate proteins of U-box E3s E4B and CHIP by orthogonal ubiquitin transfer. Sci. Adv. 4: e1701393.
6. Albrecht, L.V., et al. 2018. Arginine methylation is required for canonical Wnt signaling and endolysosomal trafficking. Proc. Natl. Acad. Sci. USA 115: E5317-E5325.
7. Albrecht, L.V., et al. 2019. Canonical Wnt is inhibited by targeting one-carbon metabolism through methotrexate or methionine deprivation. Proc. Natl. Acad. Sci. USA 116: 2987-2995.
8. Tejeda-Muñoz, N., et al. 2019. Wnt canonical pathway activates macropinocytosis and lysosomal degradation of extracellular proteins. Proc. Natl. Acad. Sci. USA 116: 10402-10411.
9. Huang, T., et al. 2021. PRMT6 methylation of RCC1 regulates mitosis, tumorigenicity, and radiation response of glioblastoma stem cells. Mol. Cell 81: 1276-1291.e9.

RESEARCH USE

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