SANTA CRUZ BIOTECHNOLOGY, INC.

PRMT1 (G-6): sc-271404

BACKGROUND

A class of proteins termed type 1 protein arginine N-methyltransferase (PRMTs) enzymes contribute to post-translational 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. At the carboxy-terminus, Interleukin enhancer-binding factor 3 (ILF3) binds PRMT1, thereby regulating PRMT1 activity. Alternative mRNA splicing of the PRMT gene results in three isoforms of PRMT1 that differ in their amino-terminus regions, all of which are enzymatically active. PRMT8, also known as HRMT1L3 or HRMT1L4 (heterogenous nuclear ribonucleioprotein methyltransferase-like protein 4), is a distinct member of the type 1 PRMT family with tissue-specific expression and plasma membrane localization. PRMT8 is specifically expressed in the brain where it functions as an arginine methyltransferase with a possible role in neuronal differentiation. It is most closely related to PRMT1 and may have arisen through a gene duplication. PRMT8 can heterodimerize with PRMT1 and has similar substrate preference.

REFERENCES

1. Tang, J., et al. 2000. PRMT1 is the predominant type 1 protein arginine methyltransferase in mammalian cells. J. Biol. Chem. 275: 7723-7730.
2. Tang, J., et al. 2000. Protein-arginine methyltransferase I, the predominant protein-arginine methyltransferase in cells, interacts with and is regulated by interleukin enhancer-binding factor 3. J. Biol. Chem. 275: 19866-19876.
3. 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.
4. Zhang, X. and Cheng, X. 2003. Structure of the predominant protein arginine methyltransferase PRMT1 and analysis of its binding to substrate peptides. Structure 11: 509-520.
5. An, W., et al. 2004. Ordered cooperative functions of PRMT1, p300, and CARM1 in transcriptional activation by p53. Cell 117: 735-748.
6. Boisvert, F.M., et al. 2005. Arginine methylation of MRE11 by PRMT1 is required for DNA damage checkpoint control. Genes Dev. 19: 671-676.

CHROMOSOMAL LOCATION

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

SOURCE

PRMT1 (G-6) is a mouse monoclonal antibody raised against amino acids 166-300 mapping within an internal region of PRMT1 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.

STORAGE

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

APPLICATIONS

PRMT1 (G-6) is recommended for detection of PRMT1 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).

PRMT1 (G-6) is also recommended for detection of PRMT1 in additional species, including equine, canine, bovine and porcine.

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.

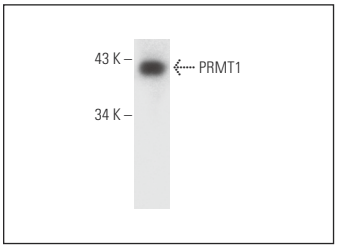
Molecular Weight of PRMT1: 42 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, PC-3 whole cell lysate: sc-2220 or K-562 whole cell lysate: sc-2203.

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



PRMT1 (G-6): sc-271404. Western blot analysis of PRMT1 expression in PC-3 whole cell lysate.

SELECT PRODUCT CITATIONS

1. Bautista, E., et al. 2016. Iron-induced oxidative stress activates Akt and ERK1/2 and decreases Dyrk1B and PRMT1 in neuroblastoma SH-SY5Y cells. J. Trace Elem. Med. Biol. 34: 62-69.
2. Osorio-Yáñez, C., et al. 2017. The ADMA/DDAH/NO pathway in human vein endothelial cells exposed to arsenite. Toxicol. In Vitro 42: 281-286.

RESEARCH USE

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