SANTA CRUZ BIOTECHNOLOGY, INC.

RNMT (3H3-1D12): sc-517112

BACKGROUND

RNMT (RNA (guanine-7-) methyltransferase), also known as MET, RG7MT1 or hCMT1c, is a widely expressed nuclear protein that belongs to the mRNA cap methyltransferase family. It is responsible for catalyzing the final step in the attachment of the m7GpppN cap to the 5' end of mRNA. Capping of mRNA plays an important role in mRNA processing, stability and translation and is therefore important for efficient gene expression. There are three enzymatic steps in the generation of the mRNA cap. The first two steps are catalyzed by RNGTT (RNA guanylyltransferase and 5' phosphatase), and the third step is catalyzed by RNMT. More specifically, RNMT catalyzes the transfer of a methyl group from AdoMet (S-adenosylmethionine) to the GpppN end of the growing mRNA at the N-7 position, thereby producing AdoHyc (S-adenosyl-homocysteine) and m7GpppN terminated RNA. Two additional isoforms of RNMT exist due to alternative splicing events, namely hCMT1a and hCMT1b.

REFERENCES

1. Pillutla, R.C., et al. 1998. Human mRNA capping enzyme (RNGTT) and cap methyltransferase (RNMT) map to 6q16 and 18p11.22-p11.23, respectively. Genomics 54: 351-353.
2. Pillutla, R.C., et al. 1998. Recombinant human mRNA cap methyltransferase binds capping enzyme/RNA polymerase IIo complexes. J. Biol. Chem. 273: 21443-21446.
3. Yokoska, J., et al. 2000. Cloning and characterization of mRNA capping enzyme and mRNA (guanine-7-)-methyltransferase cDNAs from *Xenopus laevis*. Biochem. Biophys. Res. Commun. 268: 617-624.
4. Li, J., et al. 2005. Amino acid residues within conserved domain VI of the vesicular stomatitis virus large polymerase protein essential for mRNA cap methyltransferase activity. J. Virol. 79: 13373-13384.
5. Chrebet, G.L., et al. 2005. Cell-based assays to detect inhibitors of fungal mRNA capping enzymes and characterization of sinefungin as a cap methyltransferase inhibitor. J. Biomol. Screen. 10: 355-364.
6. Schwer, B. and Shuman, S. 2006. Genetic analysis of poxvirus mRNA cap methyltransferase: suppression of conditional mutations in the stimulatory D12 subunit by second-site mutations in the catalytic D1 subunit. Virology 352: 145-156.

CHROMOSOMAL LOCATION

Genetic locus: RNMT (human) mapping to 18p11.21.

SOURCE

RNMT (3H3-1D12) is a mouse monoclonal antibody raised against amino acids 1-476 representing full length RNMT of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 kappa light chain 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

RNMT (3H3-1D12) is recommended for detection of RNMT of 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)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (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 RNMT siRNA (h): sc-75230, RNMT shRNA Plasmid (h): sc-75230-SH and RNMT shRNA (h) Lentiviral Particles: sc-75230-V.

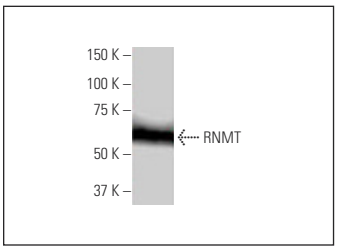
Molecular Weight of RNMT: 55 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200.

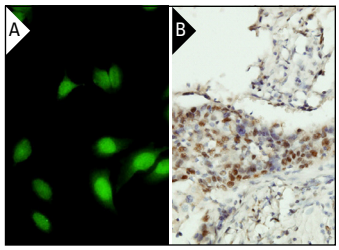
RECOMMENDED SUPPORT REAGENTS

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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



RNMT (3H3-1D12): sc-517112. Western blot analysis of RNMT expression in HeLa whole cell lysate.



RNMT (3H3-1D12); sc-517112. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human squamous cell carcinoma tissue showing nuclear staining of tumor cells (**B**).

SELECT PRODUCT CITATIONS

1. Osborne, M.J., et al. 2022. Identification and characterization of the interaction between the methyl-7-guanosine cap maturation enzyme RNMT and the cap-binding protein eIF4E. J. Mol. Biol. E-published.

STORAGE

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