SANTA CRUZ BIOTECHNOLOGY, INC.

TRMT1 (F-8): sc-514876

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Transfer RNA (tRNA) modifications help regulate the efficiency of mRNA translation by maintaining the correct reading frames. N^2,N^2-dimethylguanosine tRNA methyltransferase, also known as TRMT1 or tRNA(guanine-26,N^2-N^2) methyltransferase, is a 659 amino acid enzyme that is responsible for tRNA modifications in eukaryotes. Using S-adenosyl-L-methionine as a methyl donor, TRMT1 dimethylates a single guanine residue at position 26 of tRNA. TRMT1, which was initially identified in yeast and *C. elegans*, has a 26% and 31% sequence identity to its yeast and *C. elegans* homologs, respectively. There are two isoforms of TRMT1 produced by alternative splicing events. The TRMT1 gene maps to chromosome 19p13.2 and mutations in this gene lead to abrogated enzyme activity and a decrease in protein levels.

REFERENCES

1. Edqvist, J., et al. 1995. Enzymatic formation of N^2,N^2-dimethylguanosine in eukaryotic tRNA: importance of the tRNA architecture. Biochimie 77: 54-61.
2. Constantinesco, F., et al. 1998. The tRNA(guanine-26,N^2-N^2) methyltransferase (Trm1) from the hyperthermophilic archaeon *Pyrococcus furiosus:* cloning, sequencing of the gene and its expression in *Escherichia coli.* Nucleic Acids Res. 26: 3753-3761.
3. Liu, J., et al. 1998. Point and deletion mutations eliminate one or both methyl group transfers catalysed by the yeast TRM1 encoded tRNA ($m^2{}_2G_{26}$)dimethyltransferase. Nucleic Acids Res. 26: 5102-5108.
4. Björk, G.R., et al. 1999. Transfer RNA modification: influence on translational frameshifting and metabolism. FEBS Lett. 452: 47-51.
5. Niederberger, C., et al. 1999. The tRNA N^2,N^2-dimethylguanosine-26 methyltransferase encoded by gene Trm1 increases efficiency of suppression of an ochre codon in *Schizosaccharomyces pombe.* FEBS Lett. 464: 67-70.
6. Constantinesco, F., et al. 1999. Characterisation and enzymatic properties of tRNA(guanine 26, N^2, N^2)-dimethyltransferase (Trm1p) from *Pyrococcus furiosus.* J. Mol. Biol. 291: 375-392.

CHROMOSOMAL LOCATION

Genetic locus: TRMT1 (human) mapping to 19p13.2; Trmt1 (mouse) mapping to 8 C3.

SOURCE

TRMT1 (F-8) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 221-246 within an internal region of TRMT1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-514876 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

TRMT1 (F-8) is recommended for detection of TRMT1 isoforms 1 and 2 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 TRMT1 siRNA (h): sc-97846, TRMT1 siRNA (m): sc-154683, TRMT1 shRNA Plasmid (h): sc-97846-SH, TRMT1 shRNA Plasmid (m): sc-154683-SH, TRMT1 shRNA (h) Lentiviral Particles: sc-97846-V and TRMT1 shRNA (m) Lentiviral Particles: sc-154683-V.

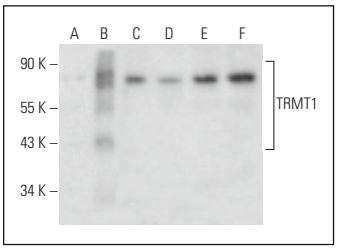
Molecular Weight of TRMT1: 72 kDa.

Positive Controls: TRMT1 (m): 293T Lysate: sc-124296, COLO 320DM cell lysate: sc-2226 or HeLa whole cell lysate: sc-2200.

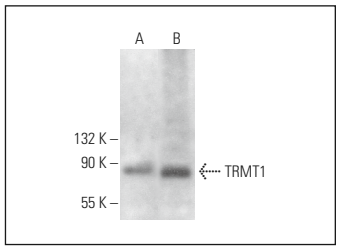
RECOMMENDED SUPPORT REAGENTS

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.

DATA



TRMT1 (F-8): sc-514876. Western blot analysis of TRMT1 expression in non-transfected 293T: sc-117752 (**A**), mouse TRMT1 transfected 293T: sc-124296 (**B**), Jurkat (**C**), JAR (**D**), COLO 320DM (**E**) and HeLa (**F**) whole cell lysates.



TRMT1 (F-8): sc-514876. Western blot analysis of TRMT1 expression in Jurkat (**A**) and MEG-01 (**B**) whole cell lysates.

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.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.