SANTA CRUZ BIOTECHNOLOGY, INC.

TRNT1 (1G11): sc-517103

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The Power to Question

BACKGROUND

TRNT1 (tRNA nucleotidyl transferase, CCA-adding, 1), also known as CCA1, MtCCA or CGI-47, is a 434 amino acid mitochondrial protein belonging to the tRNA nucleotidyltransferase/poly(A) polymerase family. Considered a CCA-adding enzyme, TRNT1 is essential for catalyzing the addition of the CCA terminus to the 3' end of tRNA precursors, a reaction which is a fundamental prerequisite for mature tRNAs to become aminoacylated and to participate in protein biosynthesis. Existing a three isoforms produced by alternative splicing events, TRNT1 binds manganese as a cofactor and is subject to homodimerization by disulfied linkage. TRNT1 is encoded by a gene located on human chromosome 3, which houses over 1,100 genes, including a chemokine receptor (CKR) gene cluster and a variety of human cancer-related gene loci.

REFERENCES

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2. Nagaike, T., et al. 2001. Identification and characterization of mammalian mitochondrial tRNA nucleotidyltransferases. J. Biol. Chem. 276: 40041-40049.
3. Tomari, Y., et al. 2002. tRNA recognition by CCA-adding enzyme. Nucleic Acids Res. Suppl. 2: 77-78.
4. Augustin, M.A., et al. 2003. Crystal structure of the human CCA-adding enzyme: insights into template-independent polymerization. J. Mol. Biol. 328: 985-994.
5. Higgins, J.J., et al. 2004. Candidate genes for recessive non-syndromic mental retardation on chromosome 3p (MRT2A). Clin. Genet. 65: 496-500.
6. Xiong, Y. and Steitz, T.A. 2004. Mechanism of transfer RNA maturation by CCA-adding enzyme without using an oligonucleotide template. Nature 430: 640-645.
7. Xiong, Y. and Steitz, T.A. 2006. A story with a good ending: tRNA 3'-end maturation by CCA-adding enzymes. Curr. Opin. Struct. Biol. 16: 12-17.
8. Lizano, E., et al. 2007. A splice variant of the human CCA-adding enzyme with modified activity. J. Mol. Biol. 366: 1258-1265.
9. Müller, C. and Distl, O. 2009. Scanning 17 candidate genes for association with primary cataracts in the wire-haired Dachshund. Vet. J. 182: 342-345.

CHROMOSOMAL LOCATION

Genetic locus: TRNT1 (human) mapping to 3p26.2.

SOURCE

TRNT1 (1G11) is a mouse monoclonal antibody raised against amino acids 1-405 representing full length TRNT1 of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

TRNT1 (1G11) is recommended for detection of TRNT1 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)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for TRNT1 siRNA (h): sc-78516, TRNT1 shRNA Plasmid (h): sc-78516-SH and TRNT1 shRNA (h) Lentiviral Particles: sc-78516-V.

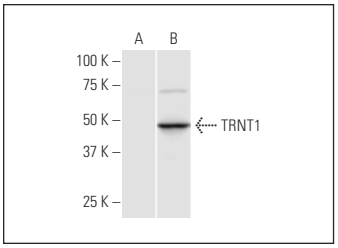
Molecular Weight of TRNT1: 50 kDa.

Positive Controls: TRNT1 transfected 293T whole cell lysate.

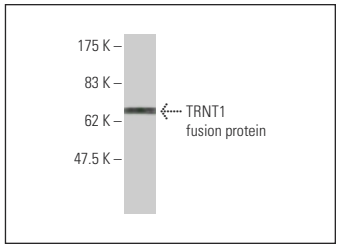
RECOMMENDED SUPPORT REAGENTS

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, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



TRNT1 (1G11): sc-517103. Western blot analysis of TRNT1 expression in non-transfected (**A**) and TRNT1 transfected (**B**) 293T whole cell lysates.



TRNT1 (1G11): sc-517103. Western blot analysis of human recombinant TRNT1 fusion protein.

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.