SANTA CRUZ BIOTECHNOLOGY, INC.

RNGTT (D-3): sc-377464

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

RNGTT (RNA guanylyltransferase and 5'-phosphatase), also known as HCE, HCE1, hCAP or CAP1A, is a 597 amino acid protein that localizes to the nucleus and exists as four alternatively spliced isoforms. Expressed in kidney, lung, heart, brain, liver, testis, skin and muscle, RNGTT acts as a bifunctional mRNA-capping enzyme that exhibits RNA 5'-triphosphatase activity at its N-terminus and mRNA guanylyltransferase activity at its C-terminus. Via its catalytic activity, RNGTT facilitates the first two steps of mRNA cap formation, naming the removal of a γ-phosphate from the end of nascent mRNA and the subsequent transfer of the phospho residue to the 5'-diphosphate terminus. The gene encoding RNGTT maps to human chromosome 6, which contains 170 million base pairs and comprises nearly 6% of the human genome.

REFERENCES

1. Yue, Z., et al. 1997. Mammalian capping enzyme complements mutant *Saccharomyces cerevisiae* lacking mRNA guanylyltransferase and selectively binds the elongating form of RNA polymerase II. Proc. Natl. Acad. Sci. USA 94: 12898-12903.
2. Tsukamoto, T., et al. 1998. Cloning and characterization of two human cDNAs encoding the mRNA capping enzyme. Biochem. Biophys. Res. Commun. 243: 101-108.
3. Tsukamoto, T., et al. 1998. Cloning and characterization of three human cDNAs encoding mRNA (guanine-7-)-methyltransferase, an mRNA cap methylase. Biochem. Biophys. Res. Commun. 251: 27-34.
4. 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.

CHROMOSOMAL LOCATION

Genetic locus: RNGTT (human) mapping to 6q15; Rngtt (mouse) mapping to 4 A5.

SOURCE

RNGTT (D-3) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 57-89 near the N-terminus of RNGTT 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.

RNGTT (D-3) is available conjugated to agarose (sc-377464 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-377464 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-377464 PE), fluorescein (sc-377464 FITC), Alexa Fluor® 488 (sc-377464 AF488), Alexa Fluor® 546 (sc-377464 AF546), Alexa Fluor® 594 (sc-377464 AF594) or Alexa Fluor® 647 (sc-377464 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-377464 AF680) or Alexa Fluor® 790 (sc-377464 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-377464 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

RNGTT (D-3) is recommended for detection of RNGTT 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).

RNGTT (D-3) is also recommended for detection of RNGTT in additional species, including equine, canine and bovine.

Suitable for use as control antibody for RNGTT siRNA (h): sc-95119, RNGTT siRNA (m): sc-153055, RNGTT shRNA Plasmid (h): sc-95119-SH, RNGTT shRNA Plasmid (m): sc-153055-SH, RNGTT shRNA (h) Lentiviral Particles: sc-95119-V and RNGTT shRNA (m) Lentiviral Particles: sc-153055-V.

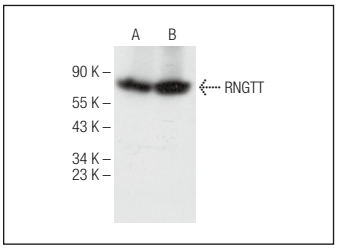
Molecular Weight of RNGTT: 69 kDa.

Positive Controls: Jurkat nuclear extract: sc-2132, IMR-32 nuclear extract: sc-2148 or mouse testis extract: sc-2405.

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



RNGTT (D-3): sc-377464. Western blot analysis of RNGTT expression in Jurkat (**A**) and IMR-32 (**B**) nuclear extracts.

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.