SANTA CRUZ BIOTECHNOLOGY, INC.

RAP1 (78B356): sc-52952

BACKGROUND

Telomeres are DNA-protein structures that protect the ends of linear chromosomes and help maintain genomic stability and cell phenotype. Mammalian telomeric proteins consist of TRF1 (telomeric repeat binding factor), TRF2, tankyrase and TIN2, which have no recognized orthologs in the budding yeast, *Saccharomyces cerevisiae,* and RAP1, which is an ortholog to the yeast telomeric protein scRap1. Like scRap1, mammalian RAP1 regulates telomere elongation. RAP1 interacts with two proteins, Rif1 and Rif2, which contribute to telomere length homeostasis. Unlike scRap1, which binds telomeric DNA directly, RAP1 is recruited to telomeres by TRF2. The functional and structural similarities of scRap1 to mammalian RAP1 suggest that the budding yeast preserved RAP1 at telomeres, but lost the TRF component. The telomeric protein TRF1 requires TIN2 to control telomere length in human cells.

REFERENCES

1. Marcand, S., et al. 1997. A protein-counting mechanism for telomere length regulation in yeast. Science 275: 986-990.
2. Wotten, D., et al. 1997. A novel Rap1p-interacting factor, Rif2p, cooperates with Rif1p to regulate telomere length in *Saccharomyces cerevisiae*. Genes Dev. 11: 748-760.
3. Kim, S.H., et al. 1999. TIN2, a new regulator of telomere length in human cells. Nat. Genet. 23: 405-412.
4. Scherthan, H., et al. 2000. Mammalian meiotic telomeres: protein composition and redistribution in relation to nuclear pores. Mol. Cell. Biol. 11: 4189-203.
5. Li, B., et al. 2000. Identification of human Rap1: implications for telomere evolution. Cell 101: 471-483.
6. Arthur, W.T., et al. 2004. Rap1 promotes cell spreading by localizing Rac guanine nucleotide exchange factors. J. Cell Biol. 167: 111-122.

CHROMOSOMAL LOCATION

Genetic locus: TERF2IP (human) mapping to 16q22.3; Terf2ip (mouse) mapping to 8 E1.

SOURCE

RAP1 (78B356) is a mouse monoclonal antibody raised against amino acids 212-235 of RAP1 of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 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.

RESEARCH USE

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

APPLICATIONS

RAP1 (78B356) is recommended for detection of RAP1 of human and, to a lesser extent, mouse origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for RAP1 siRNA (h): sc-38554, RAP1 siRNA (m): sc-38555, RAP1 shRNA Plasmid (h): sc-38554-SH, RAP1 shRNA Plasmid (m): sc-38555-SH, RAP1 shRNA (h) Lentiviral Particles: sc-38554-V and RAP1 shRNA (m) Lentiviral Particles: sc-38555-V.

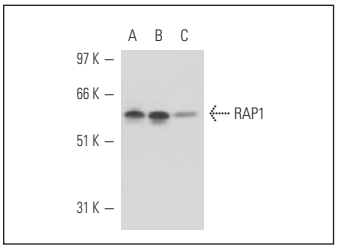
Molecular Weight of RAP1: 60 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, HL-60 nuclear extract: sc-2147 or HT-1080 cell lysate.

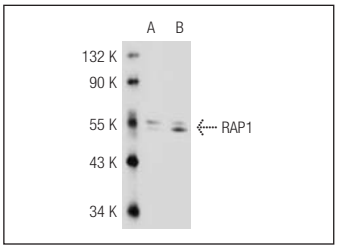
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (dilution range: 1:2000-1:5000), 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



RAP1 (78B356): sc-52952. Western blot analysis of RAP1 expression in C32 (**A**), A-431 (**B**) and K-562 (**C**) nuclear extracts.



RAP1 (78B356): sc-52952. Western blot analysis of RAP1 expression in non-transfected: sc-117752 (**A**) and mouse RAP1 transfected: sc-122973 (**B**) 293T whole cell lysates.

PROTOCOLS

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