SANTA CRUZ BIOTECHNOLOGY, INC.

TIN2 (4H262): sc-73177

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., Gilson, E. and Shore, D. 1997. A protein-counting mechanism for telomere length regulation in yeast. Science 275: 986-990.
2. Wotten, D. and and Shore, D. 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., Kaminker, P. and Campisi, J. 1999. TIN2, a new regulator of telomere length in human cells. Nat. Genet. 23: 405-412.
4. Scherthan, H., Jerratsch, M., Li, B., Smith, S., Hulten, M., Lock, T. and de Lange, T. 2000. Mammalian meiotic telomeres: protein composition and redistribution in relation to nuclear pores. Mol. Cell. Biol. 11: 4189-203.
5. Li, B., Oestreich, S. and de Lange, T. 2000. Identification of human Rap1: implications for telomere evolution. Cell 101: 471-483.

CHROMOSOMAL LOCATION

Genetic locus: TINF2 (human) mapping to 14q12; Tinf2 (mouse) mapping to 14 C3.

SOURCE

TIN2 (4H262) is a mouse monoclonal antibody raised against amino acids 44-58 of TIN2 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.

PROTOCOLS

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

APPLICATIONS

TIN2 (4H262) is recommended for detection of TIN2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000).

Suitable for use as control antibody for TIN2 siRNA (h): sc-38552, TIN2 siRNA (m): sc-38553, TIN2 shRNA Plasmid (h): sc-38552-SH, TIN2 shRNA Plasmid (m): sc-38553-SH, TIN2 shRNA (h) Lentiviral Particles: sc-38552-V and TIN2 shRNA (m) Lentiviral Particles: sc-38553-V.

Molecular Weight of TIN2: 40 kDa.

SELECT PRODUCT CITATIONS

1. Storchova, R., Palek, M., Palkova, N., Veverka, P., Brom, T., Hofr, C. and Macurek, L. 2023. Phosphorylation of TRF2 promotes its interaction with TIN2 and regulates DNA damage response at telomeres. Nucleic Acids Res. E-published.

RESEARCH USE

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