SANTA CRUZ BIOTECHNOLOGY, INC.

TRF1 (C-19): sc-1977

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Telomeric repeat binding factor 1 (TERF1, PIN2, TRF1, TRBF1) and 2 (TERF2, TRF2, TRBF2) are present at telomeres throughout the cell cycle, where they regulate telomerase by acting in *cis* to limit the elongation of individual chromosome ends. Telomerase adds hexameric repeats of 5'-TTAGGG-3' to the ends of chromosomal DNA. This telomerase enzyme plays an influential role in cellular immortalization and cellular senescence. TRF1 negatively regulates telomere elongation, while TRF2 protects the chromosome ends by inhibiting end-to-end fusions. Downregulation of TRF expression in tumor cells may contribute to cell immortalization and malignant progression. TRF1 has an acidic N-terminus while TRF2 has a basic N-terminus. TRF2 localizes in the nucleolus at G_0 and S and diffuses out of the nucleolus in G_2 phase. During mitosis TRF2 disperses from the condensed chromosomes and returns to the nucleolus at cytokinesis.

CHROMOSOMAL LOCATION

Genetic locus: TERF1 (human) mapping to 8q21.11; Terf1 (mouse) mapping to 1 A3.

SOURCE

TRF1 (C-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of TRF1 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-1977 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

Available as TransCruz reagent for ChIP application, sc-1977 X, 200 µg/0.1 ml.

APPLICATIONS

TRF1 (C-19) is recommended for detection of TRF1 of mouse, rat, human and zebrafish 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)], 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); may cross-react with TERF1P2.

TRF1 (C-19) is also recommended for detection of TRF1 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for TRF1 siRNA (h): sc-36722, TRF1 siRNA (m): sc-36723, TRF1 shRNA Plasmid (h): sc-36722-SH, TRF1 shRNA Plasmid (m): sc-36723-SH, TRF1 shRNA (h) Lentiviral Particles: sc-36722-V and TRF1 shRNA (m) Lentiviral Particles: sc-36723-V.

TRF1 (C-19) X TransCruz antibody is recommended for ChIP assays.

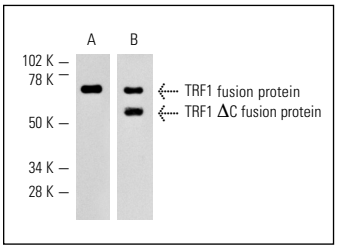
Molecular Weight of TRF1: 60 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200.

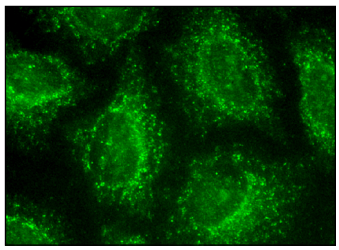
STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

DATA



Western blot analysis of full length and C-terminally deleted human recombinant TRF1 fusion protein (**A**,**B**). Antibodies tested include TRF1 (C-19): sc-1977 (**A**) and TRF1 (N-19): sc-6165 (**B**).



TRF1 (C-19): sc-1977. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Smilenov, L.B., et al. 1998. Molecular cloning and chromosomal localization of Chinese hamster telomeric protein chTRF1. Its potential role in chromosomal instability. Oncogene 17: 2137-2142.
2. Temime-Smaali, N., et al. 2008. Topoisomerase IIIα is required for normal proliferation and telomere stability in alternative lengthening of telomeres. EMBO J. 27: 1513-1524.
3. Spallarossa, P., et al. 2009. Doxorubicin induces senescence or apoptosis in rat neonatal cardiomyocytes by regulating the expression levels of the telomere binding factors 1 and 2. Am. J. Physiol. Heart Circ. Physiol. 297: H2169-H2181.
4. Ballal, R.D., et al. 2009. BRCA1 localization to the telomere and its loss from the telomere in response to DNA damage. J. Biol. Chem. 284: 36083-36098.
5. Temime-Smaali, N., et al. 2009. The G-quadruplex ligand telomestatin impairs binding of topoisomerase IIIα to G-quadruplex-forming oligonucleotides and uncaps telomeres in ALT cells. PLoS ONE 4: e6919.
6. Aguennouz, M., et al. 2011. Telomere shortening is associated to TRF1 and PARP1 overexpression in Duchenne muscular dystrophy. Neurobiol. Aging 32: 2190-2197.

RESEARCH USE

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