SANTA CRUZ BIOTECHNOLOGY, INC.

TRF1 (TRF-78): sc-56807

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/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.

REFERENCES

1. Aragona, M., et al. 2000. Immunohistochemical telomeric-repeat binding factor 1 expression in gastrointestinal tumors. Oncol. Rep. 7: 987-990.
2. Matsutani, N., et al. 2001. Expression of telomeric repeat binding factor 1 and 2 and TRF1-interacting nuclear protein 2 in human gastric carcinomas. Int. J. Oncol. 19: 507-512.
3. Yajima, T., et al. 2001. Telomerase reverse transcriptase and telomeric-repeat binding factor protein 1 as regulators of telomerase activity in pancreatic cancer cells. Br. J. Cancer 85: 752-757.

CHROMOSOMAL LOCATION

Genetic locus: TERF1 (human) mapping to 8q21.11.

SOURCE

TRF1 (TRF-78) is a mouse monoclonal antibody raised against TRF1 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.

APPLICATIONS

TRF1 (TRF-78) is recommended for detection of TRF1 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 immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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

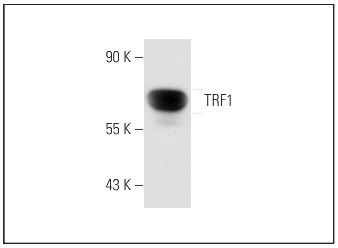
Molecular Weight of TRF1: 60 kDa.

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



TRF1 (TRF-78): sc-56807. Western blot analysis of TRF1 expression in HeLa whole cell lysate.

SELECT PRODUCT CITATIONS

1. Zhu, Q., et al. 2009. GNL3L stabilizes the TRF1 complex and promotes mitotic transition. J. Cell Biol. 185: 827-839.
2. Kamranvar, S.A. and Masucci, M.G. 2011. The Epstein-Barr virus nuclear antigen-1 promotes telomere dysfunction via induction of oxidative stress. Leukemia 25: 1017-1025.
3. Hsu, J.K., et al. 2012. Nucleostemin prevents telomere damage by promoting PML-IV recruitment to SUMOylated TRF1. J. Cell Biol. 197: 613-624
4. Kamranvar, S.A., et al. 2013. Telomere dysfunction and activation of alternative lengthening of telomeres in B-lymphocytes infected by Epstein-Barr virus. Oncogene 32: 5522-5530.
5. Sun, L., et al. 2015. Targeted DNA damage at individual telomeres disrupts their integrity and triggers cell death. Nucleic Acids Res. 43: 6334-6347.
6. Wheaton, K., et al. 2017. Progerin-induced replication stress facilitates premature senescence in Hutchinson-Gilford progeria syndrome. Mol. Cell. Biol. 37 pii: e00659-16.
7. Sun, L., et al. 2017. WRN is recruited to damaged telomeres via its RQC domain and tankyrase1-mediated poly-ADP-ribosylation of TRF1. Nucleic Acids Res. 45: 3844-3859.
8. Fouquerel, E., et al. 2019. Targeted and persistent 8-oxoguanine base damage at telomeres promotes telomere loss and crisis. Mol. Cell 75: 117-130.
9. Li, P., et al. 2019. Nuclear localization of Desmoplakin and its involvement in telomere maintenance. Int. J. Biol. Sci. 15: 2350-2362.
10. Masamsetti, V.P., et al. 2019. Replication stress induces mitotic death through parallel pathways regulated by WAPL and telomere deprotection. Nat. Commun. 10: 4224.

RESEARCH USE

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