

# Rif1 (N-20): sc-55979

## BACKGROUND

Rif1 (Rap1-interacting factor 1) is the 2,472 amino acid homolog of the yeast Rap1 protein and is highly expressed in testis, with increased expression in late G<sub>2</sub>/S phase of the cell cycle. Localized to midzone microtubules during anaphase and to condensed chromosomes during telophase, Rif1 is required for DNA-damage-induced, checkpoint-mediated cell cycle arrest during S phase. The yeast homolog of Rif1 functions by localizing to DNA-damaged foci and binding to uncapped telomeres, thereby inhibiting telomere elongation and slowing cell cycle progression. Human Rif1, unlike its yeast counterpart, does not participate in telomere maintenance or capping, but rather is thought to function at the microtubule midzone in a more global DNA damage response pathway. Rif1 may act by controlling transcription of telomere-related genes or by controlling resolution of twisted chromosomes by topoisomerase II (Topo II). Two isoforms of Rif1 exist due to alternative splicing events.

## REFERENCES

1. Li, B., et al. 2003. Rap1 affects the length and heterogeneity of human telomeres. *Mol. Biol. Cell* 14: 5060-5068.
2. Silverman, J., et al. 2004. Human Rif1, ortholog of a yeast telomeric protein, is regulated by Atm and 53BP1 and functions in the S-phase checkpoint. *Genes Dev.* 18: 2108-2119.
3. Banerjee, S., et al. 2004. Increased genome instability and telomere length in the *elg1*-deficient *Saccharomyces cerevisiae* mutant are regulated by S-phase checkpoints. *Eukaryotic Cell* 3: 1557-1566.
4. Xu, L., et al. 2004. Human Rif1 protein binds aberrant telomeres and aligns along anaphase midzone microtubules. *J. Cell Biol.* 167: 819-830.
5. Hsu, S.Y., et al. 2005. Evolution of the signaling system in Relaxin-family peptides. *Ann. N.Y. Acad. Sci.* 1041: 520-529.
6. Ji, H., et al. 2005. Regulation of telomere length by an N-terminal region of the yeast telomerase reverse transcriptase. *Mol. Cell. Biol.* 25: 9103-9114.

## CHROMOSOMAL LOCATION

Genetic locus: RIF1 (human) mapping to 2q23.3 .

## SOURCE

Rif1 (N-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of Rif1 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-55979 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## STORAGE

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

## APPLICATIONS

Rif1 (N-20) is recommended for detection of Rif1 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)], 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).

Rif1 (N-20) is also recommended for detection of Rif1 in additional species, including equine and bovine.

Suitable for use as control antibody for Rif1 siRNA (h): sc-62944, Rif1 shRNA Plasmid (h): sc-62944-SH and Rif1 shRNA (h) Lentiviral Particles: sc-62944-V.

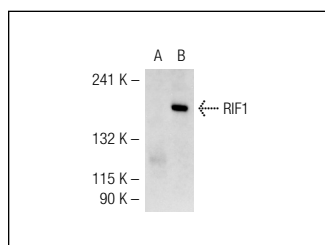
Molecular Weight of Rif1: 274 kDa.

Positive Controls: RIF1 (h): 293 Lysate: sc-112277 or HeLa whole cell lysate: sc-2200.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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). 3) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## DATA



Rif1 (N-20): sc-55979. Western blot analysis of RIF1 expression in non-transfected: sc-117752 (A) and human RIF1 transfected: sc-112277 (B) 293T whole cell lysates.

## RESEARCH USE

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

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Try **Rif1 (B-3): sc-515573**, our highly recommended monoclonal alternative to Rif1 (N-20).