

Sir2 (γ-80): sc-25753

BACKGROUND

Telomeric DNA is bound by the transcription regulator Rap1 (repressor activator protein 1, also designated Grf1). In addition to playing a role in silencing the HM mating-type loci, Rap1 is involved in the repression of genes located adjacent to the telomeres, a phenomenon known as telomere position effect (TPE). The silent information regulator proteins Sir2 (also designated Mar1), Sir3 (also designated Mar2, Ste8 or Cmt1) and Sir4 (also designated Ste9, Asd1 or Uth2) form a complex with Rap1. These proteins are essential for TPE silencing and HM structure. Sir1 is essential for silencing the HM mating-type loci, but it has no effect on Tpe. Tel1, a member of the PI 3-kinase family and a homolog of the human ataxia telangiectasia protein, is involved in controlling telomere length. Hdf1 (also referred to as Ku-70), a homolog of the mammalian Ku-70, also plays a role in maintaining telomere length.

REFERENCES

1. Kyrion, G., Liu, K., Liu, C. and Lustig, A.J. 1993. RAP1 and telomere structure regulate telomere position effects in *Saccharomyces cerevisiae*. *Genes Dev.* 7: 1146-1159.
2. Palladino, F., Laroche, T., Gilson, E., Axelrod, A., Pillus, L. and Gasser, S.M. 1993. Sir3 and Sir4 proteins are required for the positioning and integrity of yeast telomeres. *Cell* 75: 543-555.
3. Cockell, M., Palladino, F., Laroche, T., Kyrion, G., Liu, C., Lustig, A.J. and Gasser, S.M. 1995. The carboxy termini of Sir4 and Rap1 affect Sir3 localization: evidence for a multicomponent complex required for yeast telomeric silencing. *J. Cell Biol.* 129: 909-924.
4. Greenwell, P.W., Kronmal, S.L., Porter, S.E., Gassenhuber, J., Obermaier, B. and Petes, T.D. 1995. Tel1, a gene involved in controlling telomere length in *S. cerevisiae*, is homologous to the human ataxia telangiectasia gene. *Cell* 82: 823-829.
5. Porter, S.E., Greenwell, P.W., Ritchie, K.B. and Petes, T.D. 1996. The DNA-binding protein Hdf1p (a putative Ku homologue) is required for maintaining normal telomere length in *Saccharomyces cerevisiae*. *Nucleic Acids Res.* 24: 582-585.
6. Tsukamoto, Y., Kato, J.I. and Ikeda, H. 1997. Silencing factors participate in DNA repair and recombination in *Saccharomyces cerevisiae*. *Nature* 388: 900-903.

SOURCE

Sir2 (γ-80) is a rabbit polyclonal antibody raised against amino acids 1-80 of Sir2 of *Saccharomyces cerevisiae* origin.

PRODUCT

Each vial contains 200 μg IgG 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.

APPLICATIONS

Sir2 (γ-80) is recommended for detection of Sir2 of *Saccharomyces cerevisiae* 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 solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Molecular Weight of Sir2: 70 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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).

SELECT PRODUCT CITATIONS

1. Mazor, Y., et al. 2009. Developmentally regulated MAPK pathways modulate heterochromatin in *Saccharomyces cerevisiae*. *Nucleic Acids Res.* 37: 4839-4849.
2. Dai, J., et al. 2010. Yin and Yang of histone H2B roles in silencing and longevity: a tale of two arginines. *Genetics* 186: 813-828.
3. Lindstrom, D.L., et al. 2011. Replicative age induces mitotic recombination in the ribosomal RNA gene cluster of *Saccharomyces cerevisiae*. *PLoS Genet.* 7: e1002015.

RESEARCH USE

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

PROTOCOLS

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