

Top3 (y-300): sc-98274

BACKGROUND

In budding yeast, loss of Topoisomerase III, encoded by the Top3 gene, leads to a genomic instability phenotype that includes slow growth, hyper-sensitivity to genotoxic agents, mitotic hyper-recombination, increased chromosome mis-segregation, and meiotic failure. The *Saccharomyces cerevisiae* Top3 gene is highly conserved in evolution. The RecQ DNA helicase, yeast Sgs1, forms a complex with Topoisomerase III (Top3) and functions during DNA replication to restart forks that have paused due to DNA damage or topological stress. The N-terminal region of Sgs1, which interacts with Top3, is required for complementation of MMS sensitivity and suppression of hyper-recombination in Sgs1 disruptants. Slow growth and other defects of Top3 mutants are suppressed by mutation of Sgs1. Sgs1 is a homologue of the human Bloom's syndrome and Werner's syndrome genes.

REFERENCES

1. Bailis, A.M., et al. 1992. Genome rearrangement in Top3 mutants of *Saccharomyces cerevisiae* requires a functional Rad1 excision repair gene. *Mol. Cell. Biol.* 12: 4988-4993.
2. Wu, L., et al. 2000. The Bloom's syndrome gene product interacts with topoisomerase III. *J. Biol. Chem.* 275: 9636-9644.
3. Kaliraman, V., et al. 2001. Functional overlap between Sgs1-Top3 and the Mms4-Mus81 endonuclease. *Genes Dev.* 15: 2730-2740.
4. Ui, A., et al. 2001. The N-terminal region of Sgs1, which interacts with Top3, is required for complementation of MMS sensitivity and suppression of hyper-recombination in Sgs1 disruptants. *Mol. Genet. Genomics* 265: 837-850.
5. Shor, E., et al. 2002. Mutations in homologous recombination genes rescue Top3 slow growth in *Saccharomyces cerevisiae*. *Genetics* 162: 647-662.
6. Oakley, T.J., et al. 2002. Inactivation of homologous recombination suppresses defects in topoisomerase III-deficient mutants. *DNA Repair* 1: 463-482.
7. Wang, T.F. and Kung, W.M. 2002. Supercomplex formation between Mlh1-Mlh3 and Sgs1-Top3 heterocomplexes in meiotic yeast cells. *Biochem. Biophys. Res. Commun.* 296: 949-953.

SOURCE

Top3 (y-300) is a rabbit polyclonal antibody raised against amino acids 357-656 mapping at the C-terminus of Top3 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

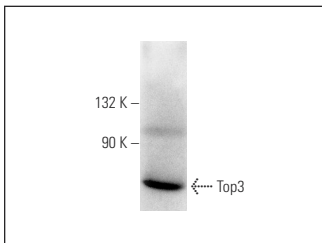
Top3 (y-300) is recommended for detection of Top3 of *Saccharomyces cerevisiae* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Positive Controls: *Saccharomyces cerevisiae* whole cell lysate.

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). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



Top3 (y-300): sc-98274. Western blot analysis of Top3 expression in *Saccharomyces cerevisiae* whole cell lysate.

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.