

# Rad53 (yN-19): sc-6748

## BACKGROUND

DNA damage results in the arrest of cell cycle progression, allowing the damaged DNA to be repaired prior to replication. Checkpoints exist at several cell cycle phase transitions to maintain this genetic integrity. Rad9, Rad17, Rad24 and Mec3 are involved in activating the G<sub>1</sub> and G<sub>2</sub> checkpoints. Pol2 (also known as Dun2), encoding the catalytic subunit of DNA polymerase  $\epsilon$ , plays a role in activating the S phase checkpoint. The protein kinase Rad53 (also designated Spk1, Mec2 or Sad1) is essential for both G<sub>2</sub> and S phase arrest. Activation of Rad53 is regulated by Mec1 (also known as Esr1 and Sad3), a homolog of the human ATM protein. Pds1 and Mad2 both regulate checkpoints associated with incomplete spindle replication. Dun1, another protein kinase, plays a role in transducing the DNA damage signal.

## REFERENCES

- Li, R., et al. 1993. The mitotic feedback control gene MAD2 encodes the  $\alpha$  subunit of a prenyltransferase. *Nature* 366: 82-84.
- Zhou, Z. and Elledge, S.J. 1993. Dun1 encodes a protein kinase that controls the DNA damage response in yeast. *Cell* 75: 1119-1127.
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- Siede, W., et al. 1996. Cloning and characterization of RAD17, a gene controlling cell cycle responses to DNA damage in *Saccharomyces cerevisiae*. *Nucleic Acids Res.* 24: 1669-1675.
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- Yamamoto, A., et al. 1996. Pds1p, an inhibitor of anaphase in budding yeast, plays a critical role in the APC and checkpoint pathway(s). *J. Cell Biol.* 133: 99-110.

## SOURCE

Rad53 (yN-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of Rad53 of *Saccharomyces cerevisiae* origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-6748 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

Rad53 (yN-19) is recommended for detection of Rad53 of *Saccharomyces cerevisiae* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000).

Molecular Weight of Rad53: 92 kDa.

## 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.

## SELECT PRODUCT CITATIONS

- Bellaoui, M., et al. 2003. Elg1 forms an alternative RFC complex important for DNA replication and genome integrity. *EMBO J.* 22: 4304-4313.
- Chang, M., et al. 2005. RMI1/NCE4, a suppressor of genome instability, encodes a member of the RecQ helicase/Topo III complex. *EMBO J.* 24: 2024-2033.
- Flott, S. and Rouse, J. 2005. Slx4 becomes phosphorylated after DNA damage in a Mec1/Tel1-dependent manner and is required for repair of DNA alkylation damage. *Biochem. J.* 391: 325-333.
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- Toh, G.W., et al. 2010. Mec1/Tel1-dependent phosphorylation of Slx4 stimulates Rad1-Rad10-dependent cleavage of non-homologous DNA tails. *DNA Repair* 9: 718-726.

## STORAGE

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

## RESEARCH USE

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



Try **Rad53 (A-9): sc-74427** or **Rad53 (B-6): sc-74426**, our highly recommended monoclonal alternatives to Rad53 (yN-19).