

Rad1 (SQ-41): sc-81826

BACKGROUND

DNA damage or incomplete replication of DNA results in inhibition of cell cycle progression at the G₁/S or G₂/M checkpoints by conserved regulatory mechanisms. Rad17 is involved in regulation of cell cycle arrest at the G₁ checkpoint, whereas Chk1, Rad1, Rad9 and Hus1 are involved in regulation of cell cycle arrest at the G₂ checkpoint. Overexpression of Rad17 results in p53 activation and an accumulation of cells in G₁ phase. Chk1 functions as an essential component in the G₂ DNA damage checkpoint by phosphorylating Cdc25C in response to DNA damage, thus inhibiting mitosis. Hus1 and Rad9 exhibit conserved function in fission yeast and higher eukaryotes. Hus1 has been shown to be phosphorylated in response to DNA damage, a process which requires Rad checkpoint genes. Rad9 is thought to be a candidate tumor suppressor gene because it is localized to human chromosome 11q13.1-13.2, which is a region containing a number of tumor suppressor loci.

REFERENCES

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2. Paques, F. and Haber, J.E. 1997. Two pathways for removal of nonhomologous DNA ends during double-strand break repair in *Saccharomyces cerevisiae*. *Mol. Cell. Biol.* 17: 6765-6771.
3. Kang, L.E. and Symington, L.S. 2000. Aberrant double-strand break repair in Rad51 mutants of *Saccharomyces cerevisiae*. *Mol. Cell. Biol.* 20: 9162-9172.
4. Kearney, H.M., Kirkpatrick, D.T., Gerton, J.L. and Petes, T.D. 2001. Meiotic recombination involving heterozygous large insertions in *Saccharomyces cerevisiae*: formation and repair of large, unpaired DNA loops. *Genetics* 158: 1457-1476.
5. Jauert, P.A., Edmiston, S.N., Conway, K., and Kirkpatrick, D.T. 2002. Rad1 controls the meiotic expansion of the human HRAS1 minisatellite in *Saccharomyces cerevisiae*. *Mol. Cell. Biol.* 22: 953-964.
6. Manthey, G.M. and Bailis, A.M. 2002. Multiple pathways promote short-sequence recombination in *Saccharomyces cerevisiae*. *Mol. Cell. Biol.* 22: 5347-5356.

CHROMOSOMAL LOCATION

Genetic locus: RAD1 (human) mapping to 16p13.13.

SOURCE

Rad1 (SQ-41) is a mouse monoclonal antibody raised against recombinant Rad1 of human origin.

STORAGE

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

PRODUCT

Each vial contains 100 µg IgG₃ in 1.0 ml PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Rad1 (SQ-41) is recommended for detection of Rad1 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

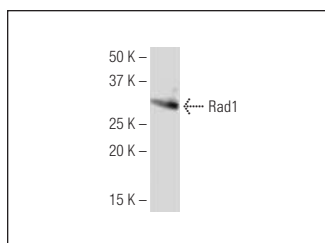
Molecular Weight of Rad1: 29 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200.

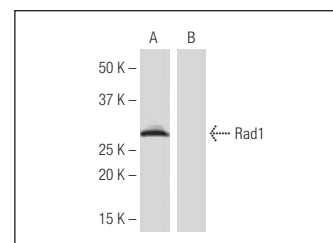
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (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-mouse IgG-FITC: sc-2010 (dilution range: 1:100-1:400) or goat anti-mouse IgG-TR: sc-2781 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 4) Immunohistochemistry: use ImmunoCruz™: sc-2050 or ABC: sc-2017 mouse IgG Staining Systems.

DATA



Rad1 (SQ-41): sc-81826. Western blot analysis of Rad1 expression in HeLa whole cell lysate.



Rad1 (SQ-41): sc-81826 Western blot analysis of Rad1 expression in human Rad1 transfected (A) and non-transfected (B) 293T whole cell lysates.

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.