

# Rad1 (G-6): sc-166495

## BACKGROUND

DNA damage or incomplete replication of DNA results in inhibition of cell cycle progression at the G<sub>1</sub>/S or G<sub>2</sub>/M checkpoints by conserved regulatory mechanisms. Rad17 is involved in regulation of cell cycle arrest at the G<sub>1</sub> checkpoint, whereas Chk1, Rad1, Rad9 and Hus1 are involved in regulation of cell cycle arrest at the G<sub>2</sub> checkpoint. Overexpression of Rad17 results in p53 activation and an accumulation of cells in G<sub>1</sub> phase. Chk1 functions as an essential component in the G<sub>2</sub> 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 11 containing a number of tumor suppressor loci.

## REFERENCES

1. Carr, A.M., et al. 1995. The Chk1 pathway is required to prevent mitosis following cell-cycle arrest at "start". *Curr. Biol.* 5: 1179-1190.
2. Lieberman, H.B., et al. 1996. A human homolog of the *Schizosaccharomyces pombe* Rad9<sup>+</sup> checkpoint control gene. *Proc. Natl. Acad. Sci. USA* 93: 13890-13895.
3. Sanchez, Y., et al. 1997. Conservation of the Chk1 checkpoint pathway in mammals: linkage of DNA damage to Cdk regulation through Cdc25. *Science* 277: 1497-1501.
4. O'Connell, M.J., et al. 1997. Chk1 is a Wee1 kinase in the G<sub>2</sub> DNA damage checkpoint inhibiting Cdc2 by Y15 phosphorylation. *EMBO J.* 16: 545-554.

## CHROMOSOMAL LOCATION

Genetic locus: RAD1 (human) mapping to 5p13.2.

## SOURCE

Rad1 (G-6) is a mouse monoclonal antibody raised against amino acids 1-282 representing full length Rad1 of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Rad1 (G-6) is available conjugated to agarose (sc-166495 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-166495 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166495 PE), fluorescein (sc-166495 FITC), Alexa Fluor® 488 (sc-166495 AF488), Alexa Fluor® 546 (sc-166495 AF546), Alexa Fluor® 594 (sc-166495 AF594) or Alexa Fluor® 647 (sc-166495 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166495 AF680) or Alexa Fluor® 790 (sc-166495 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-166495 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

## APPLICATIONS

Rad1 (G-6) is recommended for detection of Rad1 of human origin by Western Blotting (starting dilution 1:100, 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).

Suitable for use as control antibody for Rad1 siRNA (h): sc-36356, Rad1 shRNA Plasmid (h): sc-36356-SH and Rad1 shRNA (h) Lentiviral Particles: sc-36356-V.

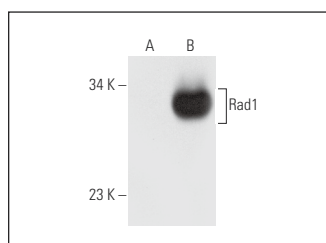
Molecular Weight of Rad1: 29 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, Jurkat whole cell lysate: sc-2204 or Rad1 (h): 293T Lysate: sc-110519.

## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 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 m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## DATA



Rad1 (G-6): sc-166495. Western blot analysis of Rad1 expression in non-transfected: sc-117752 (A) and human Rad1 transfected: sc-110519 (B) 293T whole cell lysates.

## 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.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.

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