

Rad1 (h): 293T Lysate: sc-110519

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 a region of human chromosome 11, which is a region 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⁺ 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 G₂ DNA damage checkpoint inhibiting Cdc2 by Y15 phosphorylation. *EMBO. J.* 16: 545-554.
5. Peng, C.Y., et al. 1997. Mitotic and G₂ checkpoint control: regulation of 14-3-3 protein binding by phosphorylation of Cdc25C on Serine 216. *Science* 277: 1501-1505.
6. Kostrub, C.F., et al. 1998. Hus1p, a conserved fission yeast checkpoint protein, interacts with Rad1p and is phosphorylated in response to DNA damage. *EMBO. J.* 17: 2055-2066.
7. Bao, S., et al. 1999. hRad17, a human homologue of the *Schizosaccharomyces pombe* checkpoint gene Rad17, is overexpressed in colon carcinoma. *Cancer Res.* 59: 2023-2028.

CHROMOSOMAL LOCATION

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

PRODUCT

Rad1 (h): 293T Lysate represents a lysate of human Rad1 transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

APPLICATIONS

Rad1 (h): 293T Lysate is suitable as a Western Blotting positive control for human reactive Rad1 antibodies. Recommended use: 10-20 µl per lane.

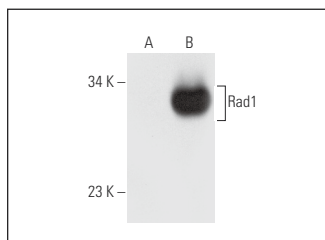
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

Rad1 (G-6): sc-166495 is recommended as a positive control antibody for Western Blot analysis of enhanced human Rad1 expression in Rad1 transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

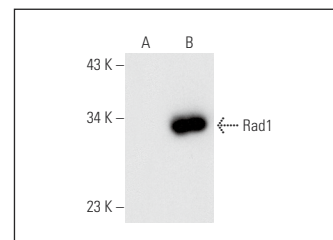
RECOMMENDED SUPPORT REAGENTS

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.

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.



Rad1 (D-6): sc-166515. Western blot analysis of Rad1 expression in non-transfected: sc-117752 (A) and human Rad1 transfected: sc-110519 (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 for detailed protocols and support products.