

Rad54 (D-18): sc-5849

BACKGROUND

DNA double-strand breaks are generated by ionizing radiation and endogenously produced radicals, and they often are repaired through the Rad52 homologous recombination pathway. The Rad52 family includes Rad51, Rad52, Rad54, Rad54B and MRE11 genes. Rad51 and Rad52 proteins perform the key steps in homologous recombination (HR), including the search for DNA homology and strand exchange, through similar mechanisms. Mre11 functions in both non-homologous end joining, and meiotic HR, and it is essential in mitosis for chromosome maintenance. Rad54 belongs to the SWI2/SNF2 subfamily of ATPases, which includes the DNA helicases involved in replication, recombination, and repair, as it contains seven amino acid sequence motifs that are largely conserved. Rad54 ATPase activity is dependent on double-stranded (ds) DNA, and the ATPase activity of Rad54 is not absolutely required for its DNA repair function, suggesting that these activities occur at distinct regions of the molecule. Rad54B is significantly homologous to the Rad54 recombination gene. Expression of Rad54B is highest in testis and spleen, which are active in both meiotic and mitotic recombination.

CHROMOSOMAL LOCATION

Genetic locus: RAD54L (human) mapping to 1p32; Rad54l (mouse) mapping to X D.

SOURCE

Rad54 (D-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of Rad54 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-5849 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

Rad54 (D-18) is recommended for detection of Rad54 of mouse, rat and 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Rad54 siRNA (h): sc-36362, Rad54 siRNA (m): sc-36363, Rad54 shRNA Plasmid (h): sc-36362-SH, Rad54 shRNA Plasmid (m): sc-36363-SH, Rad54 shRNA (h) Lentiviral Particles: sc-36362-V and Rad54 shRNA (m) Lentiviral Particles: sc-36363-V.

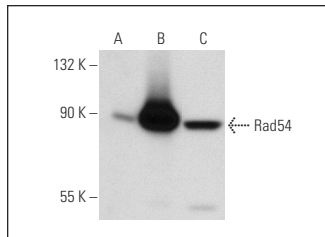
Molecular Weight of Rad54: 85 kDa.

Positive Controls: Rad54 (m): 293T Lysate: sc-125883, K-562 nuclear extract: sc-2130 or Jurkat nuclear extract: sc-2132.

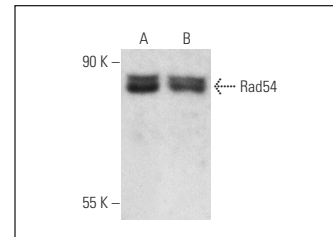
RECOMMENDED SECONDARY REAGENTS

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. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



Rad54 (D-18): sc-5849. Western blot analysis of Rad54 expression in non-transfected: sc-117752 (A) and mouse Rad54 transfected: sc-125883 (B) 293T whole cell lysates and HeLa nuclear extract (C).



Rad54 (D-18): sc-5849. Western blot analysis of Rad54 expression in K-562 (A) and Jurkat (B) nuclear extracts.

SELECT PRODUCT CITATIONS

- Linke, S.P., et al. 2003. p53 interacts with hRAD51 and hRAD54, and directly modulates homologous recombination. *Cancer Res.* 63: 2596-2605.
- Restle, A. 2005. Differences in the association of p53 phosphorylated on serine 15 and key enzymes of homologous recombination. *Oncogene* 24: 4380-4387.
- Vasileva, A., et al. 2006. Homologous recombination is required for AAV-mediated gene targeting. *Nucleic Acids Res.* 34: 3345-3360.
- Akiyama, K., et al. 2006. Rad54 is dispensable for the ALT pathway. *Genes Cells* 11: 1305-1315.
- Lee, S.A., et al. 2009. Recovery of deficient homologous recombination in Brca2-depleted mouse cells by wildtype Rad51 expression. *DNA Repair* 8: 170-181.

RESEARCH USE

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

MONOS
Satisfaction
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Try **Rad54 (F-11): sc-374598** or **Rad54 (4E3/1): sc-53433**, our highly recommended monoclonal alternatives to Rad54 (D-18).