

Rad54 (A-4): sc-166370

BACKGROUND

Rad52 family members (Rad50, Rad51B/C/D, Rad52, Rad54, MRE11) mediate DNA double-strand break repair (DSBR) for DNA damage that otherwise could cause cell death, mutation or neoplastic transformation. Rad51 (RECA, BRCC5) interacts with BRCA1 and BRCA2 to influence subcellular localization and cellular response to DNA damage. BRCA2 inactivation may be a key event leading to genomic instability and tumorigenesis from deregulation of Rad51. Rad52 forms a heptameric ring that binds single-stranded DNA ends and catalyzes DNA-DNA interaction necessary for the annealing of complementary strands. Rad52 can interact with Rad51. Rad54A of the DEAD-like helicase superfamily binds to double-strand DNA and induces a DNA topological change, which is thought to facilitate homologous DNA pairing and stimulate DNA recombination. Rad54B of the DEAD-like helicase superfamily binds to double-stranded DNA and displays ATPase activity in the presence of DNA. RAD54B is abundant in testis and spleen, and mutations of this gene occur in primary lymphoma and colon cancer. MRE11 (meiotic recombination 11, ATLD, HNGS1) is a nuclear 3'-5' exonuclease/endonuclease that associates with Rad50 and influences homologous recombination, telomere length maintenance and DNA double-strand break repair. MRE11 is most abundant in proliferating tissues.

CHROMOSOMAL LOCATION

Genetic locus: RAD54L (human) mapping to 1p34.1; Rad54l (mouse) mapping to 4 D1.

SOURCE

Rad54 (A-4) is a mouse monoclonal antibody raised against amino acids 1-152 mapping at the N-terminus of Rad54 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

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

APPLICATIONS

Rad54 (A-4) is recommended for detection of Rad54 of mouse, rat and 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 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.

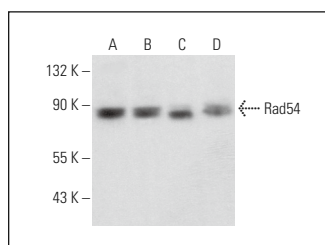
Molecular Weight of Rad54: 85 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, CCRF-CEM cell lysate: sc-2225 or Rad54 (m): 293T Lysate: sc-125883.

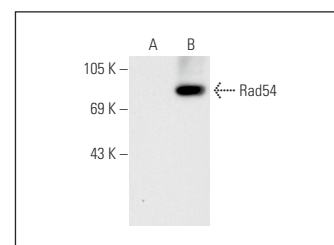
RECOMMENDED SUPPORT REAGENTS

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



Rad54 (A-4): sc-166370. Western blot analysis of Rad54 expression in K-562 (A) and CCRF-CEM (B) whole cell lysates and HL-60 (C) and MOLT-4 (D) nuclear extracts.



Rad54 (A-4): sc-166370. Western blot analysis of Rad54 expression in non-transfected: sc-117752 (A) and mouse Rad54 transfected: sc-125883 (B) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Tian, X.P., et al. 2020. BRD2 induces drug resistance through activation of the RasGRP1/Ras/ERK signaling pathway in adult T-cell lymphoblastic lymphoma. *Cancer Commun.* 40: 245-259.
2. Llorens-Agost, M., et al. 2021. POLθ-mediated end joining is restricted by RAD52 and BRCA2 until the onset of mitosis. *Nat. Cell Biol.* 23: 1095-1104.
3. Ghosh, I., et al. 2023. TLK1-mediated RAD54 phosphorylation spatiotemporally regulates homologous recombination repair. *Nucleic Acids Res.* 51: 8643-8662.

STORAGE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.