

Rad50 (13B3/2C6): sc-56209

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. Rad54A of the DEAD-like helicase superfamily binds to double-stranded 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.

REFERENCES

1. Tsukamoto, Y., et al. 1996. Effects of mutations of Rad50, Rad51, Rad52, and related genes on illegitimate recombination in *Saccharomyces cerevisiae*. *Genetics* 142: 383-391.
2. Zhong, Q., et al. 2002. Deficient nonhomologous end-joining activity in cell-free extracts from BRCA1-null fibroblasts. *Cancer Res.* 62: 3966-3970.

CHROMOSOMAL LOCATION

Genetic locus: RAD50 (human) mapping to 5q31.1; Rad50 (mouse) mapping to 11 B1.3.

SOURCE

Rad50 (13B3/2C6) is a mouse monoclonal antibody raised against amino acids 1-425 of Rad50 of human origin.

PRODUCT

Each vial contains 50 µg IgG₁ in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Rad50 (13B3/2C6) is recommended for detection of Rad50 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 immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for Rad50 siRNA (h): sc-37397, Rad50 siRNA (m): sc-37398, Rad50 shRNA Plasmid (h): sc-37397-SH, Rad50 shRNA Plasmid (m): sc-37398-SH, Rad50 shRNA (h) Lentiviral Particles: sc-37397-V and Rad50 shRNA (m) Lentiviral Particles: sc-37398-V.

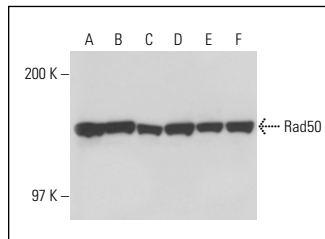
Molecular Weight of Rad50: 150 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, Jurkat nuclear extract: sc-2132 or K-562 nuclear extract: sc-2130.

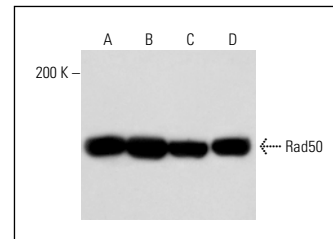
STORAGE

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

DATA



Rad50 (13B3/2C6): sc-56209. Western blot analysis of Rad50 expression in HeLa (A), K-562 (B), MCF7 (C), Ramos (D), SW480 (E) and Jurkat (F) nuclear extracts.



Rad50 (13B3/2C6): sc-56209. Western blot analysis of Rad50 expression in HeLa (A), K-562 (B), Jurkat (C) and HEL 92.1.7 (D) nuclear extracts.

SELECT PRODUCT CITATIONS

1. Roth, S., et al. 2014. Rad50-CARD9 interactions link cytosolic DNA sensing to IL-1β production. *Nat. Immunol.* 15: 538-545.
2. Flores-Pérez, A., et al. 2014. Rad50 targeting impairs DNA damage response and sensitizes human breast cancer cells to cisplatin therapy. *Cancer Biol. Ther.* 15: 777-788.
3. Lou, D.I., et al. 2016. An intrinsically disordered region of the DNA repair protein Nbs1 is a species-specific barrier to herpes simplex virus 1 in primates. *Cell Host Microbe* 20: 178-188.
4. Harada, K., et al. 2017. Gimeracil enhances the antitumor effect of cisplatin in oral squamous cell carcinoma cells *in vitro* and *in vivo*. *Oncol. Lett.* 14: 3349-3356.
5. Li, C.G., et al. 2019. PPARγ interaction with UBR5/ATMIN promotes DNA repair to maintain endothelial homeostasis. *Cell Rep.* 26: 1333-1343.
6. Chen, Z.W., et al. 2022. Circular RNA circ-MTHFD1L induces HR repair to promote gemcitabine resistance via the miR-615-3p/RPN6 axis in pancreatic ductal adenocarcinoma. *J. Exp. Clin. Cancer Res.* 41: 153.
7. Reuss, D.E., et al. 2023. Simultaneous Nbs1 and p53 inactivation in neural progenitors triggers high-grade gliomas. *Neuropathol. Appl. Neurobiol.* 49: e12915.

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.