

Rad54 (m): 293T Lysate: sc-125883

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.

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.
3. Lisby, M., et al. 2003. Co-localization of multiple DNA double-strand breaks at a single Rad52 repair centre. *Nat. Cell Biol.* 5: 572-577.
4. Sugawara, N., et al. 2003. *In vivo* roles of Rad52, Rad54, and Rad55 proteins in Rad51-mediated recombination. *Mol. Cell* 12: 209-219.
5. Miyazaki, T., et al. 2004. *In vivo* assembly and disassembly of Rad51 and Rad52 complexes during double-strand break repair. *EMBO J.* 23: 939-949.
6. O'Connor, M.S., et al. 2004. The human Rap1 protein complex and modulation of telomere length. *J. Biol. Chem.* 279: 28585-28591.
7. Bekker-Jensen, S., et al. 2006. Spatial organization of the mammalian genome surveillance machinery in response to DNA strand breaks. *J. Cell Biol.* 173: 195-206.
8. Wu, Y., et al. 2006. DNA annealing mediated by Rad52 and Rad59 proteins. *J. Biol. Chem.* 281: 15441-15449.
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CHROMOSOMAL LOCATION

Genetic locus: Rad54l (mouse) mapping to 4 D1.

RESEARCH USE

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

PRODUCT

Rad54 (m): 293T Lysate represents a lysate of mouse Rad54 transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

APPLICATIONS

Rad54 (m): 293T Lysate is suitable as a Western Blotting positive control for mouse reactive Rad54 antibodies. Recommended use: 10-20 µl per lane.

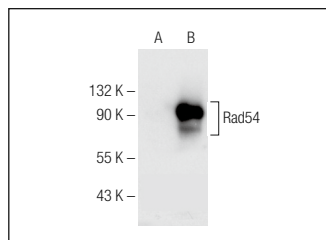
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

Rad54 (F-11): sc-374598 is recommended as a positive control antibody for Western Blot analysis of enhanced mouse Rad54 expression in Rad54 transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

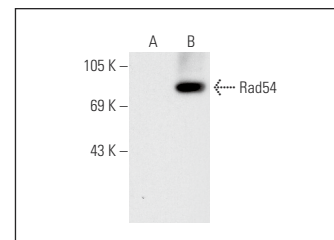
RECOMMENDED SUPPORT REAGENTS

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



Rad54 (F-11): sc-374598. Western blot analysis of Rad54 expression in non-transfected: sc-117752 (A) and mouse Rad54 transfected: sc-125883 (B) 293T whole cell lysates.



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.

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.

PROTOCOLS

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