

# Rad50 (G-2): sc-74460

## 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.

## CHROMOSOMAL LOCATION

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

## SOURCE

Rad50 (G-2) is a mouse monoclonal antibody raised against amino acids 1013-1312 mapping at the C-terminus of Rad50 of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Rad50 (G-2) is available conjugated to agarose (sc-74460 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-74460 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-74460 PE), fluorescein (sc-74460 FITC), Alexa Fluor® 488 (sc-74460 AF488), Alexa Fluor® 546 (sc-74460 AF546), Alexa Fluor® 594 (sc-74460 AF594) or Alexa Fluor® 647 (sc-74460 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-74460 AF680) or Alexa Fluor® 790 (sc-74460 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

## APPLICATIONS

Rad50 (G-2) is recommended for detection of Rad50 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 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.

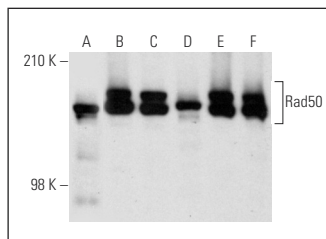
Molecular Weight of Rad50: 150 kDa.

Positive Controls: Caco-2 cell lysate: sc-2262, L8 cell lysate: sc-3807 or K-562 whole cell lysate: sc-2203.

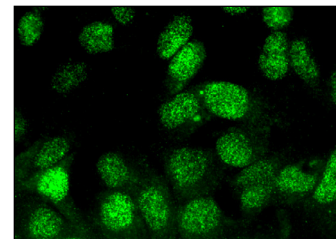
## STORAGE

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

## DATA



Rad50 (G-2): sc-74460. Western blot analysis of Rad50 expression in K-562 (A), HEL 92.1.7 (B), L8 (C), Caco-2 (D), HS 181.Tes (E) and HeLa (F) whole cell lysates.



Rad50 (G-2): sc-74460. Immunofluorescence staining of formalin-fixed Hep G2 cells showing nuclear localization.

## SELECT PRODUCT CITATIONS

- Cook, P.J., et al. 2009. Tyrosine dephosphorylation of H2AX modulates apoptosis and survival decisions. *Nature* 458: 591-596.
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- Chen, X., et al. 2012. Suberoylanilide hydroxamic acid as a radiosensitizer through modulation of Rad51 protein and inhibition of homology-directed repair in multiple myeloma. *Mol. Cancer Res.* 10: 1052-1064.
- Chen, X., et al. 2013. Suberoylanilide hydroxamic acid induces hypersensitivity to radiation therapy in acute myelogenous leukemia cells expressing constitutively active FLT3 mutants. *PLoS ONE* 8: e84515.
- Roth, S., et al. 2014. Rad50-CARD9 interactions link cytosolic DNA sensing to IL-1 $\beta$  production. *Nat. Immunol.* 15: 538-545.
- Chen, G., et al. 2017. Suppression of Sirt1 sensitizes lung cancer cells to WEE1 inhibitor MK-1775-induced DNA damage and apoptosis. *Oncogene* 36: 6863-6872.
- Wang, Y., et al. 2018. Rad50 expression is associated with poor clinical outcomes after radiotherapy for resected non-small cell lung cancer. *Clin. Cancer Res.* 24: 341-350.
- Ha Thi, H.T., et al. 2019. MicroRNA-130a modulates a radiosensitivity of rectal cancer by targeting SOX4. *Neoplasia* 21: 882-892.
- Kim, H., et al. 2021. Stable maintenance of the Mre11-Rad50-Nbs1 complex is sufficient to restore the DNA double-strand break response in cells lacking RecQL4 helicase activity. *J. Biol. Chem.* 297: 101148.

## RESEARCH USE

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

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