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# Anti-RAD50 Antibody

Catalog # AP96027

## Product Information

| | |
|---|---|
| **Application** | WB, IHC, FC |
| **Primary Accession** | Q92878 |
| **Reactivity** | Human, Rat |
| **Host** | Mouse |
| **Clonality** | Monoclonal |
| **Calculated MW** | 153892 |

## Additional Information

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|---|---|
| **Gene ID** | 10111 |
| **Other Names** | DNA repair protein RAD50; hRAD50 |
| **Target/Specificity** | Recombinant fusion protein of human RAD50 expressed in E. Coli |
| **Dilution** | WB~~WB (1/500 - 1/1000) IHC~~1:100~500 FC~~FC (1/100 - 1/200) |
| **Format** | Mouse IgG2a. Liquid in PBS, pH 7.3, 30% glycerol, and 0.01% sodium azide. |
| **Storage** | Store at -20 °C.Stable for 12 months from date of receipt |

## Protein Information

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|---|---|
| **Name** | RAD50 {ECO:0000303\|PubMed:8756642, ECO:0000312\|HGNC:HGNC:9816} |
| **Function** | Component of the MRN complex, which plays a central role in double-strand break (DSB) repair, DNA recombination, maintenance of telomere integrity and meiosis (PubMed:15064416, PubMed:21757780, PubMed:27889449, PubMed:28134932, PubMed:28867292, PubMed:9590181, PubMed:9651580, PubMed:9705271). The MRN complex is involved in the repair of DNA double-strand breaks (DSBs) via homologous recombination (HR), an error-free mechanism which primarily occurs during S and G2 phases (PubMed:15064416, PubMed:21757780, PubMed:27889449, PubMed:28867292, PubMed:9590181, PubMed:9651580, PubMed:9705271). The complex (1) mediates the end resection of damaged DNA, which generates proper single-stranded DNA, a key initial steps in HR, and is (2) required for the recruitment of other repair factors and efficient activation of ATM and ATR upon DNA damage (PubMed:15064416, PubMed:27889449, PubMed:28867292, PubMed:9590181, PubMed:9651580, PubMed:9705271). The MRN complex possesses single-strand endonuclease activity and double-strand-specific 3'-5' exonuclease activity, which are provided by MRE11, to initiate end resection, which is required for single-strand invasion and recombination (PubMed:11741547, PubMed:9590181, PubMed:9651580, |

PubMed:9705271). Within the complex, RAD50 is both required to bind DNA ends and hold them in close proximity and regulate the activity of MRE11 (PubMed:11741547, PubMed:12805565, PubMed:28134932). RAD50 provides an ATP-dependent control of MRE11 by positioning DNA ends into the MRE11 active site: ATP-binding induces a large structural change from an open form with accessible MRE11 nuclease sites into a closed form (By similarity). The MRN complex is also required for DNA damage signaling via activation of the ATM and ATR kinases: the nuclease activity of MRE11 is not required to activate ATM and ATR (PubMed:15064416, PubMed:15790808, PubMed:16622404). The MRN complex is also required for the processing of R-loops (PubMed:31537797). In telomeres the MRN complex may modulate t-loop formation (PubMed:10888888).

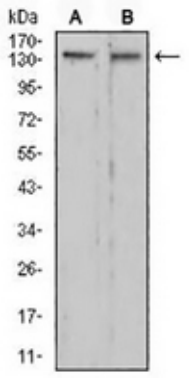
**Cellular Location**

Nucleus. Chromosome, telomere. Chromosome Note=Localizes to discrete nuclear foci after treatment with genotoxic agents (PubMed:10783165, PubMed:26215093). Localizes to DNA double- strand breaks (DSBs) (PubMed:15916964, PubMed:21757780)

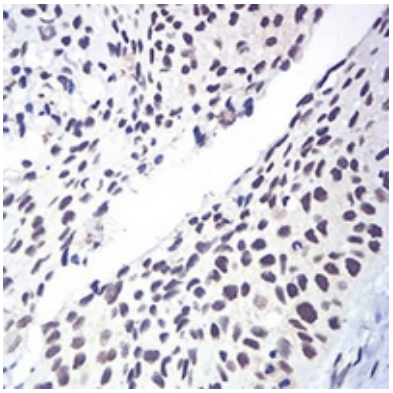
**Tissue Location**

Expressed at very low level in most tissues, except in testis where it is expressed at higher level. Expressed in fibroblasts.

## Images

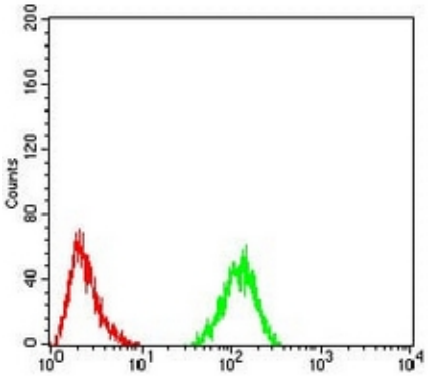



Western blot analysis of RAD50 expression in C6 (A), HepG2 (B) whole cell lysates. (Predicted band size: 154 kD; Observed band size: 135 kD)



Immunohistochemical analysis of RAD50 staining in human esophageal cancer formalin fixed paraffin embedded tissue section. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6.0). The section was then incubated with the antibody at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.

Flow cytometric analysis of HeLa cells using Anti-RAD50 Antibody (green) and negative control (red).




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