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Rad50 Antibody

Rabbit mAb
Catalog # AP91401

Product Information

Application	WB, IF, ICC
Primary Accession	Q92878
Reactivity	Rat, Human, Mouse
Clonality	Monoclonal
Other Names	hRAD50; Mrell; NBSLD; Rad 50; RAD50 2; rad50; RAD50 homolog (S cerevisiae); RAD50 PEN; RAD502; Rad50l;
Isotype	Rabbit IgG
Host	Rabbit
Calculated MW	153892

Additional Information

Dilution	WB 1:500~1:2000 ICC/IF 1:50~1:200
Purification	Affinity-chromatography
Immunogen	A synthesized peptide derived from human Rad50
Description	Component of the MRN complex, which plays a central role in double-strand break (DSB) repair, DNA recombination, maintenance of telomere integrity and meiosis. The complex possesses single-strand endonuclease activity and double-strand-specific 3'-5' exonuclease activity, which are provided by MRE11A.
Storage Condition and Buffer	Rabbit IgG in phosphate buffered saline , pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol. Store at +4°C short term. Store at -20°C long term. Avoid freeze / thaw cycle.

Protein Information

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).

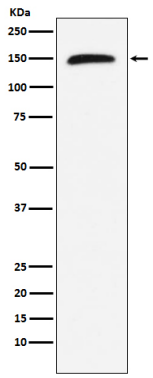
Cellular Location

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 Jurkat cell lysate;