

RAD51 Antibody

Purified Mouse Monoclonal Antibody (Mab)

Catalog # AW5075

Product Information

Application	WB
Primary Accession	Q06609
Reactivity	Human, Mouse, Rat
Host	Mouse
Clonality	Monoclonal
Calculated MW	36966
Isotype	IgG1, κ
Antigen Source	HUMAN

Additional Information

Gene ID	5888
Other Names	DNA repair protein RAD51 homolog 1, HsRAD51, hRAD51, RAD51 homolog A, RAD51, RAD51A, RECA
Dilution	WB~~1:1000
Target/Specificity	This RAD51 antibody is generated from a mouse immunized with a recombination protein from human.
Format	Purified monoclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein G column, followed by dialysis against PBS.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	RAD51 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	RAD51 (HGNC:9817)
Synonyms	RAD51A, RECA
Function	Plays an important role in homologous strand exchange, a key step in DNA repair through homologous recombination (HR) (PubMed: 12205100 , PubMed: 18417535 , PubMed: 20231364 , PubMed: 20348101 , PubMed: 22325354 , PubMed: 23509288 , PubMed: 23754376 ,

PubMed:[26681308](#), PubMed:[28575658](#), PubMed:[32640219](#)). Binds to single-stranded DNA in an ATP-dependent manner to form nucleoprotein filaments which are essential for the homology search and strand exchange (PubMed:[12205100](#), PubMed:[18417535](#), PubMed:[20231364](#), PubMed:[20348101](#), PubMed:[23509288](#), PubMed:[23754376](#), PubMed:[26681308](#), PubMed:[28575658](#)). Catalyzes the recognition of homology and strand exchange between homologous DNA partners to form a joint molecule between a processed DNA break and the repair template (PubMed:[12205100](#), PubMed:[18417535](#), PubMed:[20231364](#), PubMed:[20348101](#), PubMed:[23509288](#), PubMed:[23754376](#), PubMed:[26681308](#), PubMed:[28575658](#), PubMed:[38459011](#)). Recruited to resolve stalled replication forks during replication stress (PubMed:[27797818](#), PubMed:[31844045](#)). Part of a PALB2-scaffolded HR complex containing BRCA2 and RAD51C and which is thought to play a role in DNA repair by HR (PubMed:[12442171](#), PubMed:[24141787](#)). Plays a role in regulating mitochondrial DNA copy number under conditions of oxidative stress in the presence of RAD51C and XRCC3 (PubMed:[20413593](#)). Also involved in interstrand cross-link repair (PubMed:[26253028](#)).

Cellular Location

Nucleus. Cytoplasm. Cytoplasm, perinuclear region. Mitochondrion matrix
Chromosome. Cytoplasm, cytoskeleton, microtubule organizing center, centrosome Note=Colocalizes with RAD51AP1 and RPA2 to multiple nuclear foci upon induction of DNA damage (PubMed:20154705). DNA damage induces an increase in nuclear levels (PubMed:20154705). Together with FIGL1, redistributed in discrete nuclear DNA damage-induced foci after ionizing radiation (IR) or camptothecin (CPT) treatment (PubMed:23754376). Accumulated at sites of DNA damage in a SPIDR- dependent manner (PubMed:23509288). Recruited at sites of DNA damage in a MCM9-MCM8-dependent manner (PubMed:23401855). Recruited at sites of DNA damage following interaction with TOPBP1 in S-phase (PubMed:26811421). Colocalizes with ERCC5/XPG to nuclear foci in S phase (PubMed:26833090). Recruited to stalled replication forks during replication stress by the TONSL-MMS22L complex, as well as ATAD5 and WDR48 in an ATR-dependent manner (PubMed:27797818, PubMed:31844045)

Tissue Location

Highly expressed in testis and thymus, followed by small intestine, placenta, colon, pancreas and ovary. Weakly expressed in breast

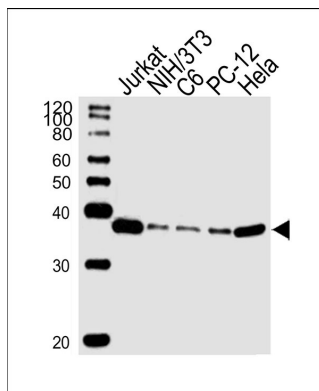
Background

Participates in a common DNA damage response pathway associated with the activation of homologous recombination and double-strand break repair. Binds to single and double-stranded DNA and exhibits DNA-dependent ATPase activity. Underwinds duplex DNA and forms helical nucleoprotein filaments. Plays a role in regulating mitochondrial DNA copy number under conditions of oxidative stress in the presence of RAD51C and XRCC3.

References

- Shinohara A.,et al.Nat. Genet. 4:239-243(1993).
Yoshimura Y.,et al.Nucleic Acids Res. 21:1665-1665(1993).
Schmutte C.,et al.Cancer Res. 59:4564-4569(1999).
Wang W.W.,et al.Cancer Epidemiol. Biomarkers Prev. 10:955-960(2001).
Park J.Y.,et al.Nucleic Acids Res. 36:3226-3234(2008).

Images



Western blot analysis of lysates from Jurkat, mouse NIH/3T3, rat C6, rat PC-12, HeLa cell line (from left to right), using RAD51 Antibody (Cat. #AW5075). AW5075 was diluted at 1:1000 at each lane. A goat anti-mouse IgG H&L (HRP) at 1:10000 dilution was used as the secondary antibody.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.