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Rad51 Antibody

Purified Mouse Monoclonal Antibody (Mab)
Catalog # AP52714

Product Information

Application	WB
Primary Accession	Q06609
Reactivity	Human, Mouse
Host	Mouse
Clonality	Monoclonal
Isotype	IgG2a
Calculated MW	36966

Additional Information

Gene ID	5888
Other Names	BRCA1/BRCA2 containing complex, subunit 5 ; BRCC 5 ; BRCC5 ; DNA repair protein RAD51 homolog 1 ; DNA repair protein rhp51 ; HRAD51 ; HsRad51 ; HsT16930 ; MRMV2 ; Rad 51 ; RAD51 ; RAD51 homolog (RecA homolog, E. coli) (S. cerevisiae) ; RAD51 homolog A ; RAD51 homolog ; RAD51 recombinase ; RAD51, S. cerevisiae, homolog of ; RAD51_HUMAN ; RAD51A ; RECA ; RecA like protein ; RecA, E. coli, homolog of ; Recombination protein A.
Dilution	WB~~1:1000
Format	Liquid in PBS containing 50% glycerol, 0.5% BSA and 0.02% sodium azide, pH 7.3.
Storage	Store at 4°C short term. Aliquot and store at -20°C long term. Avoid freeze/thaw cycles.

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 FIGNL1, 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. Part of a PALB2- scaffolded HR complex containing BRCA2 and RAD51C and which is thought to play a role in DNA repair by HR. Plays a role in regulating mitochondrial DNA copy number under conditions of oxidative stress in the presence of RAD51C and XRCC3.

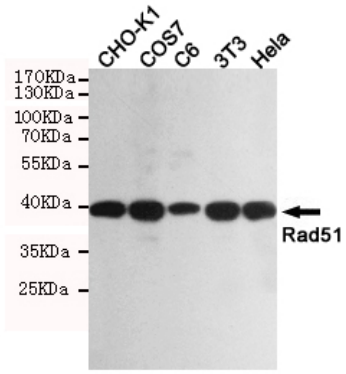
References

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 detection of Rad51 in CHO-K1,COS7,C6,3T3 and Hela cell lysates using Rad51 mouse mAb (1:1000 diluted).Predicted band size:37KDa.Observed band

size:37KDa.



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