10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

Rad51 Polyclonal Antibody

Catalog # AP72148

Product Information

Application	WB, IHC-P, IF, ICC, E
Primary Accession	Q06609
Reactivity	Human, Mouse
Host	Rabbit
Clonality	Polyclonal
Calculated MW	36966

Additional Information

Gene ID	5888
Other Names	RAD51; RAD51A; RECA; DNA repair protein RAD51 homolog 1; HsRAD51; hRAD51; RAD51 homolog A
Dilution	WB~~Western Blot: 1/500 - 1/2000. Immunohistochemistry: 1/100 - 1/300. ELISA: 1/20000. Not yet tested in other applications. IHC-P~~N/A IF~~1:50~200 ICC~~N/A E~~N/A
Format	Liquid in PBS containing 50% glycerol, 0.5% BSA and 0.09% (W/V) sodium azide.
Storage Conditions	-20℃

Protein Information

Name	RAD51 {ECO:0000303|PubMed:8358431, ECO:0000312|HGNC:HGNC:9817}
Function	Homologous DNA recombinase that catalyzes strand exchange, a key step in DNA repair through homologous recombination (HR) (PubMed:12205100, PubMed:12442171, PubMed:15937124, PubMed:17515904, PubMed:17515903, PubMed:18417535, PubMed:19303847, PubMed:20231364, PubMed:20348101, PubMed:22325354, PubMed:23509288, PubMed:23754376, PubMed:24141787, PubMed:26681308, PubMed:27941124, PubMed:28575658, PubMed:32640219, PubMed:37499663, PubMed:38509361, PubMed:7988572). Binds to single-stranded DNA (ssDNA) in an ATP-dependent manner to form nucleoprotein filaments which are essential for the homology search and strand exchange (PubMed:12205100, PubMed:15937124, PubMed:17515904, PubMed:17515903, PubMed:18417535, PubMed:19303847, PubMed:15226506, PubMed:20231364, PubMed:20348101, PubMed:23509288, PubMed:23754376, PubMed:26681308, PubMed:28575658, PubMed:37499663, PubMed:39636933, PubMed:41166468,

PubMed:38509361, PubMed:7988572). 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:19303847, PubMed:20231364, PubMed:20348101, PubMed:23509288, PubMed:23754376, PubMed:26681308, PubMed:28575658, PubMed:38459011). RAD51 targeting to ssDNA promotes removal of replication protein-A (RPA) from ssDNA and stabilization of RAD51-ssDNA filaments by blocking ATP hydrolysis (PubMed:20729859). Nucleosomal DNA is peeled from the histone surface by the RAD51 filament (PubMed:38509361). Recruited to resolve stalled replication forks during replication stress (PubMed:27797818, PubMed:31844045). Also required for homologous recombination during meiosis by acting as an non-catalytic accessory factor for DMC1 recombinase, enabling proper chromosome pairing and crossing over (By similarity). 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

Chromosome. Nucleus. Cytoplasm. Cytoplasm, perinuclear region. Mitochondrion matrix. 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). In germ cells, during meiotic prcess, binds single-stranded DNA (ssDNA) away from the break site (By similarity) {ECO:0000250|UniProtKB:Q08297, ECO:0000269|PubMed:20154705, ECO:0000269|PubMed:23401855, ECO:0000269|PubMed:23509288, ECO:0000269|PubMed:23754376, ECO:0000269|PubMed:26811421, ECO:0000269|PubMed:26833090, ECO:0000269|PubMed:27797818, ECO:0000269|PubMed:31844045}

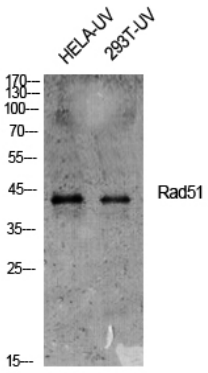
Tissue Location

Highly expressed in testis and thymus, followed by small intestine, placenta, colon, pancreas and ovary (PubMed:18417535) Weakly expressed in breast (PubMed:18417535)

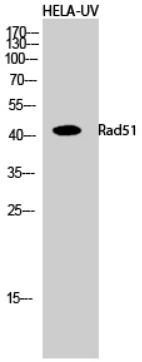
Background

Plays an important role in homologous strand exchange, a key step in DNA repair through homologous recombination (HR) (PubMed:28575658). Binds to single and double-stranded DNA and exhibits DNA-dependent ATPase activity. 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. 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:26681308). 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. Also involved in interstrand cross-link repair (PubMed:26253028).

Images



Western Blot analysis of various cells using Rad51 Polyclonal Antibody diluted at 1：500 cells nucleus extracted by Minute TM Cytoplasmic and Nuclear Fractionation kit (SC-003,Inventbiotech,MN,USA).



Western Blot analysis of HELA-UV cells using Rad51 Polyclonal Antibody diluted at 1：500 cells nucleus extracted by Minute TM Cytoplasmic and Nuclear Fractionation kit (SC-003,Inventbiotech,MN,USA).

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