abcam

ab1837

Anti-Rad51 antibody [51RAD01]

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	pH: 7.3 - 7.5 Preservative: 0.05% Sodium azide Constituents: 1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	51RAD01
Purity	IgG fraction
Light chain type	kappa

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	1/100
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

IHC-P

Not recommended

Species	Human
Dilution info	-
Notes	This antibody gives inconsistent results on tissue sections in IHC staining and we cannot guarantee it for IHC-P.

Target data

See full target information RAD51

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:15226506, 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).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	RAD51 also known as recombination protein A or Novus RAD51 is a DNA repair protein with a molecular mass of approximately 37 kDa. This protein plays a significant role in homologous recombination and is active in the repair of double-strand breaks in DNA. It is expressed in various tissues with high levels seen in rapidly dividing cells. RAD51 acts by forming nucleoprotein filaments on single-stranded DNA and facilitates the search for homology and strand pairing during the repair process.
Biological function summary	Processes involving RAD51 are essential for genomic stability and cellular response to DNA damage. RAD51 often functions as part of a repair complex along with other proteins such as BRCA2 and RPA. This complex binds and stabilizes single-stranded DNA during search and strand invasion which is vital for successful recombination repair. Such repair mechanisms are important for preventing chromosomal aberrations and maintaining genetic integrity.
Pathways	RAD51's activity fits into the broader context of DNA damage repair pathways notably the homologous recombination (HR) pathway. This pathway is important for repairing double-strand breaks utilizing other proteins such as ATM and ATR to signal repair processes. Furthermore RAD51 interacts with various members of the BRCA protein family combining efforts to ensure proper DNA damage response and repair.
Associated diseases and disorders	RAD51 mutations or dysregulation are linked to various types of cancer including breast and ovarian cancers. These cancers may involve mutations in BRCA1 and BRCA2 genes which affect RAD51's ability to effectively perform homologous recombination. Additionally disruptions in RAD51 function are associated with Fanconi anemia a disorder characterized by DNA repair defects. This condition demonstrates the importance of RAD51's interaction with FA pathway proteins in maintaining genomic stability and preventing disease.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

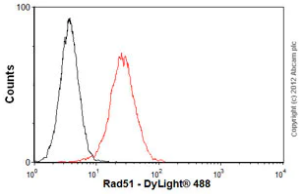
We do not recommend this combination. It is not covered by our product promise.

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1 product image



Flow Cytometry - Anti-Rad51 antibody [51RAD01] (ab1837)

Rad51 Flow Cytometry staining using mouse Anti-Rad51 antibody

Overlay histogram showing HeLa cells stained with ab1837 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab1837, 1/100 dilution) for 30 min at 22°C. The secondary antibody used was goat anti-mouse DyLight® 488 (IgG H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1] (ab91353, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed. This antibody gave a positive signal in HeLa cells fixed with 4% paraformaldehyde (10 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions.

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