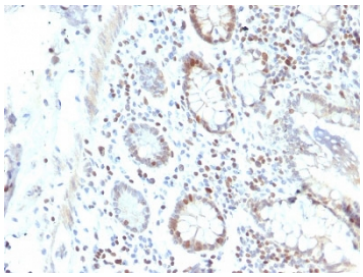
RAD51 Antibody / DNA Repair Protein Antibody [clone RAD51/2702] (V7334)

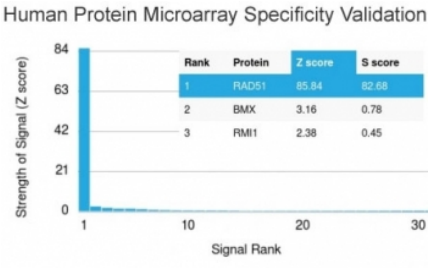
Catalog No.	Formulation	Size
V7334-100UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced) and 0.05% sodium azide	100 ug
V7334-20UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced) and 0.05% sodium azide	20 ug
V7334SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug
V7334IHC-7ML	Prediluted in 1X PBS with 0.1 mg/ml BSA (US sourced) and 0.05% sodium azide; *For IHC use only*	7 ml

Bulk quote request

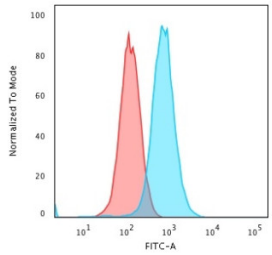
Availability	1-3 business days
Species Reactivity	Human
Format	Purified
Host	Mouse
Clonality	Monoclonal (mouse origin)
Isotype	Mouse IgG1, kappa
Clone Name	RAD51/2702
Purity	Protein G affinity chromatography
UniProt	Q06609
Localization	Nuclear
Applications	Flow cytometry: 1-2ug/ml Immunohistochemistry (FFPE): 1-2ug/ml for 30 min at RT
Limitations	This RAD51 Antibody / DNA Repair Protein Antibody is available for research use only.



RAD51 Antibody Colon Carcinoma IHC. Immunohistochemical staining of FFPE human colon carcinoma demonstrates RAD51 expression using a RAD51 antibody. RAD51, also known as RAD51 Recombinase, is a DNA repair protein that mediates homologous recombination and preserves genomic stability following DNA damage. Predominantly nuclear staining is observed in tumor cells, consistent with the role of RAD51 in DNA double strand break repair and the elevated DNA repair activity frequently seen in proliferating cancers. Heat induced epitope retrieval was performed by boiling tissue sections in pH6 10 mM citrate buffer for 10 to 20 minutes followed by cooling prior to staining. These results support the utility of RAD51 Antibody for investigating DNA damage responses, homologous recombination, and therapeutic resistance in human malignancies.



RAD51 Antibody Protein Microarray Validation. Analysis of a HuProt human protein microarray containing more than 19,000 full length human proteins demonstrates the exceptional specificity of the RAD51 antibody clone RAD51/2702. RAD51, also known as RAD51 Recombinase, is a key DNA repair protein involved in homologous recombination and maintenance of genomic stability. Among all proteins represented on the array, RAD51 exhibited the highest signal intensity with a Z score of 85.84 and an S score of 82.68, indicating strong and highly selective target recognition. The Z score reflects the signal strength generated by antibody binding relative to the mean signal of all proteins on the array, while the S score measures the difference between the top ranked target and the next highest signal. These results support the foremost specificity of the RAD51/2702 mAb and validate its utility for studies of DNA damage responses, genome maintenance, and cancer biology.



RAD51 Antibody K562 Cells FACS. Flow cytometric analysis of human K562 cells was performed using RAD51 antibody (clone RAD51/2702) followed by Goat anti-Mouse IgG-CF488 secondary antibody. RAD51, also known as RAD51 Recombinase, is a key mediator of homologous recombination and DNA double strand break repair that maintains genomic stability and coordinates cellular responses to DNA damage. Blue histogram: RAD51 antibody. Red histogram: isotype control. The marked rightward shift of the RAD51 antibody signal relative to the isotype control demonstrates specific detection of endogenous RAD51 in K562 cells. These results support the utility of this antibody for flow cytometric studies of DNA repair pathways, genome maintenance, and cellular responses to genotoxic stress.

Description

RAD51 Antibody recognizes RAD51, a highly conserved recombinase that plays a central role in homologous recombination and the repair of DNA double strand breaks. RAD51 is the eukaryotic homolog of bacterial RecA and functions by assembling nucleoprotein filaments on single stranded DNA, thereby promoting strand invasion and DNA exchange during repair. Through interactions with BRCA1, BRCA2, PALB2, and other components of the DNA damage response machinery, RAD51 preserves genomic stability and protects cells from the accumulation of mutations. Tight regulation of RAD51 activity is essential for maintaining chromosome integrity during DNA replication and cellular stress.

RAD51 is expressed in proliferating tissues and is especially important during embryonic development, meiosis, and gametogenesis. In addition to repairing DNA damage, RAD51 participates in replication fork protection and chromosome segregation. RAD51 activity is coordinated with checkpoint proteins and apoptotic pathways to ensure that damaged DNA is repaired before cell division proceeds. Defects in RAD51 function result in increased sensitivity to genotoxic stress, chromosomal instability, and impaired fertility. Because homologous recombination pathways are highly conserved among eukaryotes, RAD51 has become one of the most extensively studied proteins involved in genome maintenance.

Abnormal RAD51 expression has been associated with numerous malignancies, including breast, ovarian, pancreatic, lung, and colorectal cancers. Elevated RAD51 levels are frequently linked to increased DNA repair capacity, resistance to

radiation, and reduced sensitivity to chemotherapeutic agents. Conversely, RAD51 deficiency contributes to genomic instability and cancer susceptibility. Interactions between RAD51 and BRCA pathway proteins have made RAD51 an important biomarker and therapeutic target in oncology, particularly in the context of PARP inhibitor sensitivity and synthetic lethality strategies.

RAD51 Antibody is useful for investigations of homologous recombination, DNA damage responses, genome stability, and cancer biology. Because RAD51 is a master regulator of double strand break repair and cellular responses to genotoxic stress, it serves as an important marker for studies of chromosome maintenance, therapeutic resistance, and developmental processes. Ongoing efforts to target DNA repair pathways have further increased the importance of RAD51 in translational research and precision medicine.

RAD51 Antibody has been validated by immunohistochemistry and Protein Microarray analysis, supporting its specificity for endogenous RAD51. These characteristics make RAD51 Antibody a valuable tool for studies of DNA repair pathways, cancer progression, and cellular responses to DNA damage.

Learn more about biomarkers involved in DNA damage responses, genomic stability, and tumor progression by visiting our Cancer Antibodies page, featuring RAD51 antibodies and other proteins important in cancer biology and therapeutic resistance.

Application Notes

Optimal dilution of the RAD51 Antibody / DNA Repair Protein Antibody should be determined by the researcher.

1. The prediluted format is supplied in a dropper bottle and is optimized for use in IHC. After epitope retrieval step (if required), drip mAb solution onto the tissue section and incubate at RT for 30 min.

Immunogen

A portion of amino acids 1-134 from the human protein was used as the immunogen for this RAD51 antibody.

Storage

Store the RAD51 antibody at 2-8oC (with azide) or aliquot and store at -20oC or colder (without azide).

Alternate Names

RAD51 Recombinase Antibody, DNA Repair Protein RAD51 Antibody, Homologous Recombination Protein Antibody, DNA Strand Exchange Protein Antibody, RecA Homolog Antibody, Genome Stability Protein Antibody, Double Strand Break Repair Protein Antibody

Copyright © NSJ Bioreagents. All rights reserved.