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KD-Validated Anti-RAD50 Rabbit Monoclonal Antibody

Rabbit monoclonal antibody
Catalog # AGI1395

Specification

KD-Validated Anti-RAD50 Rabbit Monoclonal Antibody - Product Information

Application	**WB, FC, ICC**
Primary Accession	Q92878
Reactivity	**Rat, Human, Mouse**
Clonality	**Monoclonal**
Isotype	**Rabbit IgG**
Calculated MW	**Predicted, 154 kDa , observed, 154 kDa KDa**
Gene Name	**RAD50**
Aliases	**RAD50; RAD50 Double Strand Break Repair Protein; RAD50 Homolog, Double Strand Break Repair Protein; DNA Repair Protein RAD50; RAD50-2; HRad50; HRAD50; RAD50 (S. Cerevisiae) Homolog; RAD50 Homolog (S. Cerevisiae); EC 3.6.3.27; EC 3.6.1.15; EC 3.6.-.-; EC 3.6.3; RAD502; NBSLD**
Immunogen	**A synthesized peptide derived from human Rad50**

KD-Validated Anti-RAD50 Rabbit Monoclonal Antibody - Additional Information

Gene ID	**10111**

Other Names
DNA repair protein RAD50, hRAD50, 3.6.-.-, RAD50 {ECO:0000303|PubMed:8756642, ECO:0000312|HGNC:HGNC:9816}

KD-Validated Anti-RAD50 Rabbit Monoclonal Antibody - Protein Information

Name RAD50 {ECO:0000303|PubMed:8756642, ECO:0000312|HGNC:HGNC:9816}

Function
Component of the MRN complex, which plays a central role in double-strand break (DSB) repair, DNA recombination, maintenance of telomere integrity and meiosis (PubMed:15064416, PubMed:21757780, PubMed:27889449, PubMed:28134932, PubMed:28867292, PubMed:9590181, PubMed:9651580, PubMed:9705271). The MRN complex is involved in the repair of DNA double-strand breaks (DSBs) via homologous recombination (HR), an error-free mechanism which primarily occurs during S and G2 phases

(PubMed:15064416, PubMed:21757780, PubMed:27889449, PubMed:28867292, PubMed:9590181, PubMed:9651580, PubMed:9705271). The complex (1) mediates the end resection of damaged DNA, which generates proper single-stranded DNA, a key initial steps in HR, and is (2) required for the recruitment of other repair factors and efficient activation of ATM and ATR upon DNA damage (PubMed:15064416, PubMed:27889449, PubMed:28867292, PubMed:9590181, PubMed:9651580, PubMed:9705271). The MRN complex possesses single-strand endonuclease activity and double-strand-specific 3'-5' exonuclease activity, which are provided by MRE11, to initiate end resection, which is required for single-strand invasion and recombination (PubMed:11741547, PubMed:9590181, PubMed:9651580, PubMed:9705271). Within the complex, RAD50 is both required to bind DNA ends and hold them in close proximity and regulate the activity of MRE11 (PubMed:11741547, PubMed:12805565, PubMed:28134932). RAD50 provides an ATP-dependent control of MRE11 by positioning DNA ends into the MRE11 active site: ATP-binding induces a large structural change from an open form with accessible MRE11 nuclease sites into a closed form (By similarity). The MRN complex is also required for DNA damage signaling via activation of the ATM and ATR kinases: the nuclease activity of MRE11 is not required to activate ATM and ATR (PubMed:15064416, PubMed:15790808, PubMed:16622404). The MRN complex is also required for the processing of R-loops (PubMed:31537797). In telomeres the MRN complex may modulate t-loop formation (PubMed:10888888).

Cellular Location
Nucleus. Chromosome, telomere. Chromosome Note=Localizes to discrete nuclear foci after treatment with genotoxic agents (PubMed:10783165, PubMed:26215093). Localizes to DNA double- strand breaks (DSBs) (PubMed:15916964, PubMed:21757780)

Tissue Location
Expressed at very low level in most tissues, except in testis where it is expressed at higher level. Expressed in fibroblasts.

KD-Validated Anti-RAD50 Rabbit Monoclonal Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides

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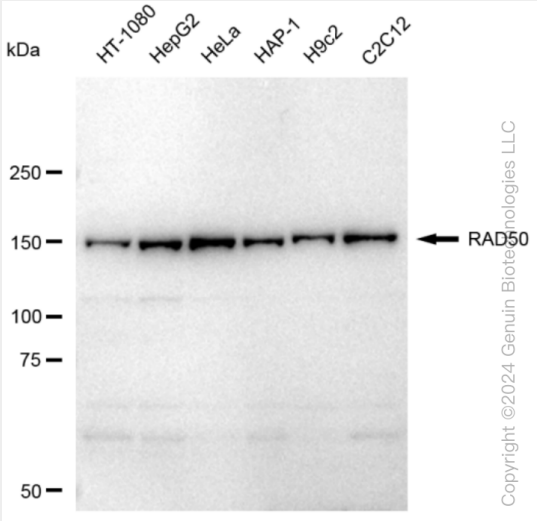
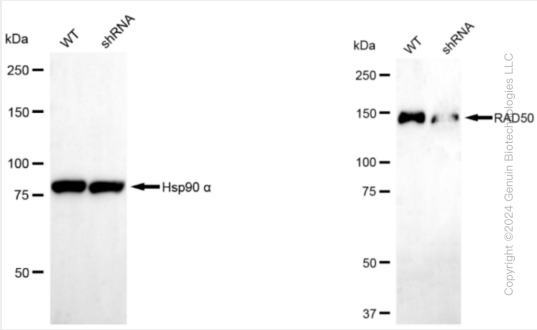
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

KD-Validated Anti-RAD50 Rabbit Monoclonal Antibody - Images



Western blotting analysis using anti-RAD50 antibody (Cat#AGI1395). Total cell lysates (30 µg) from various cell lines were loaded and separated by SDS-PAGE. The blot was incubated with anti-RAD50 antibody (Cat#AGI1395, 1:5,000) and HRP-conjugated goat anti-rabbit secondary antibody respectively.



Western blotting analysis using anti-RAD50 antibody (Cat#AGI1395). RAD50 expression in wild type (WT) and RAD50 shRNA knockdown (KD) HT-1080 cells with 30 µg of total cell lysates. Hsp90 α serves as a loading control. The blot was incubated with anti-RAD50 antibody (Cat#AGI1395, 1:5,000) and HRP-conjugated goat anti-rabbit secondary antibody respectively.

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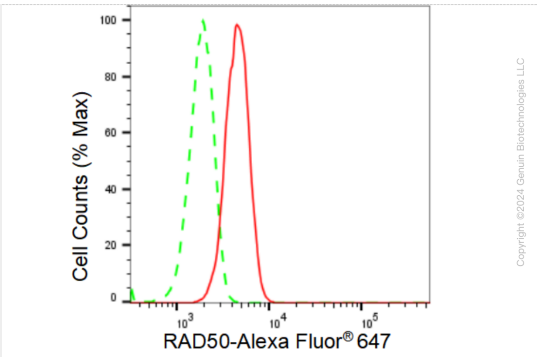
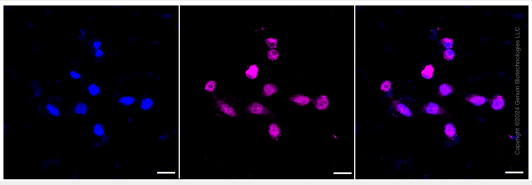


Flow cytometric analysis of RAD50 expression in HeLa cells using RAD50 antibody (Cat#AGI1395, 1:2,000). Green, isotype control; red, RAD50.



Immunocytochemical staining of HeLa cells with RAD50 antibody (Cat#AGI1395, 1:1,000). Nuclei were stained blue with DAPI; RAD50 was stained magenta with Alexa Fluor® 647. Images were taken using Leica stellaris 5. Protein abundance based on laser Intensity and smart gain: Medium. Scale bar: 20 µm.