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

Anti-Mre11 (RABBIT) Antibody

Mre11 Antibody
Catalog # ASR5327

Specification

Anti-Mre11 (RABBIT) Antibody - Product Information

Host	**Rabbit**
Conjugate	**Unconjugated**
Target Species	**Mouse**
Reactivity	**Mouse**
Clonality	**Polyclonal**
Application	**WB, E, I, LCI**
Application Note	**This affinity purified antibody has been tested for use in ELISA and western blot. Specific conditions for reactivity should be optimized by the end user. Expect a band approximately 80 kDa in size corresponding to Mre11 by western blotting in the appropriate cell lysate or extract.**
Physical State	**Liquid (sterile filtered)**
Buffer	**0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2**
Immunogen	**This affinity purified antibody was prepared from whole rabbit serum produced by repeated immunizations with a recombinant protein corresponding to amino acids 68-706 of mouse Mre11 protein.**
Preservative	**0.01% (w/v) Sodium Azide**

Anti-Mre11 (RABBIT) Antibody - Additional Information

Gene ID 17535

Other Names
4361

Purity
This affinity purified antibody is directed against mouse Mre11 protein. The product was affinity purified from monospecific antiserum by immunoaffinity purification. A BLAST analysis was used to suggest cross reactivity with Mre11 protein from rat (94% homology). Based on protein sequence homology also expect partial reactivity against Mre11 homologues from macaque (88%), human (84%) and dog (82%). This sequence shows less than 75% homology to homologues from bovine, Xenopus, chicken, chimpanzee and zebrafish sources. Reactivity against homologues from other sources is not known.

Storage Condition
Store vial at -20° C prior to opening. Aliquot contents and freeze at -20° C or below for extended storage. Avoid cycles of freezing and thawing. Centrifuge product if not completely clear after

standing at room temperature. This product is stable for several weeks at 4° C as an undiluted liquid. Dilute only prior to immediate use.

Precautions Note
This product is for research use only and is not intended for therapeutic or diagnostic applications.

Anti-Mre11 (RABBIT) Antibody - Protein Information

Name Mre11 {ECO:0000303|PubMed:14690604, ECO:0000312|MGI:MGI:1100512}

Function
Core 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:14690604, PubMed:17291760, PubMed:18854157). 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:18854157). 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:14690604, PubMed:18854157). Within the MRN complex, MRE11 possesses both single-strand endonuclease activity and double-strand-specific 3'-5' exonuclease activity (PubMed:18854157). After DSBs, MRE11 is loaded onto DSBs sites and cleaves DNA by cooperating with RBBP8/CtIP to initiate end resection (By similarity). MRE11 first endonucleolytically cleaves the 5' strand at DNA DSB ends to prevent non-homologous end joining (NHEJ) and licence HR (By similarity). It then generates a single-stranded DNA gap via 3' to 5' exonucleolytic degradation to create entry sites for EXO1- and DNA2-mediated 5' to 3' long-range resection, which is required for single-strand invasion and recombination (By similarity). RBBP8/CtIP specifically promotes the endonuclease activity of MRE11 to clear protein-DNA adducts and generate clean double-strand break ends (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:18854157). The MRN complex is also required for the processing of R-loops (By similarity). The MRN complex is involved in the activation of the cGAS-STING pathway induced by DNA damage during tumorigenesis: the MRN complex acts by displacing CGAS from nucleosome sequestration, thereby activating it (PubMed:38200309). In telomeres the MRN complex may modulate t-loop formation (By similarity).

Cellular Location
Nucleus {ECO:0000250|UniProtKB:P49959}. Chromosome {ECO:0000250|UniProtKB:P49959}. Chromosome, telomere {ECO:0000250|UniProtKB:P49959}. Note=Localizes to DNA double-strand breaks (DSBs). {ECO:0000250|UniProtKB:P49959}

Anti-Mre11 (RABBIT) Antibody - Protocols

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

- Western Blot

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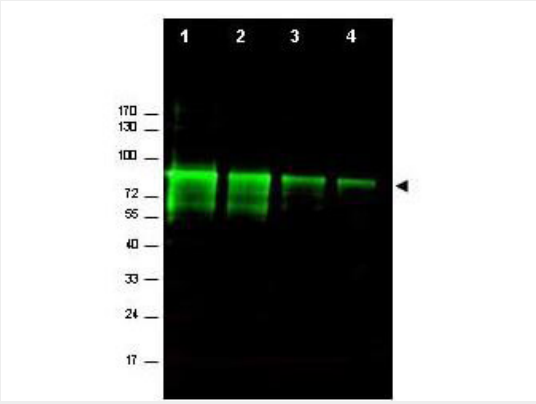
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

Anti-Mre11 (RABBIT) Antibody - Images



Western blot using Rockland's Affinity Purified anti-Mre11 antibody shows detection of a band ~80 kDa corresponding to mouse Mre11 (arrowhead). Lanes 1-4 contain 0.5 ug, 0.3 ug, 0.1 ug and 0.05 ug of purified mouse Mre11 protein, respectively. After 4-20% SDS-PAGE and transfer onto nitrocellulose, the membrane was blocked and then probed with the primary antibody diluted to 1:1,000 overnight at 4°C. The membrane was then washed and reacted with a 1:10,000 dilution of IRDye800 conjugated Gt-a-Rabbit IgG [H&L] MX (611-132-122) for 45 min at room temperature. IRDye800 fluorescence image was captured using the Odyssey® Infrared Imaging System developed by LI-COR. IRDye is a trademark of LI-COR, Inc. Other detection systems will yield similar results.

Anti-Mre11 (RABBIT) Antibody - Background

This antibody is designed, produced, and validated as part of a collaboration between Rockland and the National Cancer Institute (NCI). Mre11 is a component of the MRN complex (Mre11/Rad50/Nbs1), which plays a central role in double-strand break (DSB) repair, DNA recombination, maintenance of telomere integrity and meiosis. The complex possesses single-strand endonuclease activity and double-strand-specific 3'-5' exonuclease activity, which are provided by MRE11A. RAD50 may be required to bind DNA ends and hold them close. This could facilitate searches for short or long regions of sequence homology in the recombining DNA templates, and may also stimulate the activity of DNA ligases and/or restrict the nuclease activity of MRE11A to prevent nucleolytic degradation past a given point. The complex may also be required for DNA damage signaling via activation of the ATM kinase. In telomeres, the MRN complex may modulate t-loop formulation. Anti-Mre11 Antibody is useful for researcher interested in DNA Damage and Repair and Nuclear Signaling Research.