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Mre11 Antibody
Rabbit mAb
Catalog # AP91219

Specification

Mre11 Antibody - Product Information

Application	**WB, IHC**
Primary Accession	P49959
Reactivity	**Rat**
Clonality	**Monoclonal**

Other Names
MRE11 homolog 1; Meiotic recombination 11 homolog A; MRE11 homolog A; MRE11A; HNGS1; MRE11;

Isotype	**Rabbit IgG**
Host	**Rabbit**
Calculated MW	**80593 Da**

Mre11 Antibody - Additional Information

Dilution	**WB~~1:1000** **IHC~~1:100~500**
Purification	**Affinity-chromatography**
Immunogen	**A synthesized peptide derived from human Mre11**
Description	**DNA double-strand breaks are generated by ionizing radiation and endogenously produced radicals, and they often are repaired through the RAD52 homologous recombination pathway. 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 in close proximity.**
Storage Condition and Buffer	**Rabbit IgG in phosphate buffered saline , pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol. Store at +4°C short term. Store at -20°C long term. Avoid freeze / thaw cycle.**

Mre11 Antibody - Protein Information

Name MRE11 {ECO:0000303|PubMed:8530104, ECO:0000312|HGNC:HGNC:7230}

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:<a

href="http://www.uniprot.org/citations/11741547" target="_blank">11741547, PubMed:14657032, PubMed:22078559, PubMed:23080121, PubMed:24316220, PubMed:26240375, PubMed:27889449, PubMed:28867292, PubMed:29670289, PubMed:30464262, PubMed:30612738, PubMed:31353207, PubMed:37696958, PubMed:38128537, 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:24316220, PubMed:28867292, PubMed:31353207, PubMed:38128537). 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:24316220, PubMed:27889449, PubMed:28867292, PubMed:36050397, PubMed:38128537). Within the MRN complex, MRE11 possesses both single-strand endonuclease activity and double-strand-specific 3'-5' exonuclease activity (PubMed:11741547, PubMed:22078559, PubMed:24316220, PubMed:26240375, PubMed:27889449, PubMed:29670289, PubMed:31353207, PubMed:36563124, PubMed:9590181, PubMed:9651580, PubMed:9705271). After DSBs, MRE11 is loaded onto DSBs sites and cleaves DNA by cooperating with RBBP8/CtIP to initiate end resection (PubMed:27814491, PubMed:27889449, PubMed:30787182). MRE11 first endonucleolytically cleaves the 5' strand at DNA DSB ends to prevent non-homologous end joining (NHEJ) and licence HR (PubMed:24316220). 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 (PubMed:24316220, PubMed:28867292). RBBP8/CtIP specifically promotes the endonuclease activity of MRE11 to clear protein-DNA adducts and generate clean double-strand break ends (PubMed:<a

href="http://www.uniprot.org/citations/27814491" target="_blank">27814491, PubMed:27889449, PubMed:30787182). MRE11 endonuclease activity is also enhanced by AGER/RAGE (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:14657032, PubMed:15064416, PubMed:15790808, PubMed:16622404). The MRN complex is also required for the processing of R-loops (PubMed:31537797). 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 (By similarity). In telomeres the MRN complex may modulate t-loop formation (PubMed:10888888).

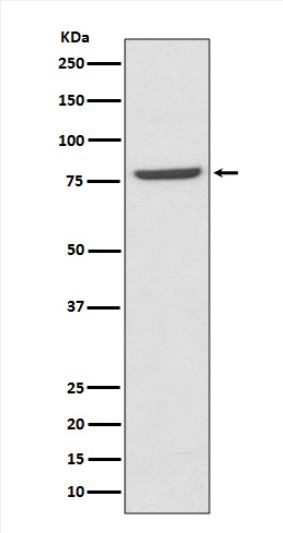
Cellular Location
Nucleus. Chromosome. Chromosome, telomere Note=Localizes to DNA double-strand breaks (DSBs)

Mre11 Antibody - Protocols

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

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

Mre11 Antibody - Images



Western blot analysis of Mre11 expression in K562 cell lysate.