

# Mre11 Rabbit mAb

Catalog # AP75736

## Product Information

Application	WB, IHC-P
Primary Accession	<a href="#">P49959</a>
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Monoclonal Antibody
Calculated MW	80593

## Additional Information

Gene ID	4361
Other Names	MRE11
Dilution	WB~~1/500-1/1000 IHC-P~~N/A
Format	Liquid

## Protein Information

Name	MRE11 {ECO:0000303   PubMed:8530104, ECO:0000312   HGNC:HGNC:7230}
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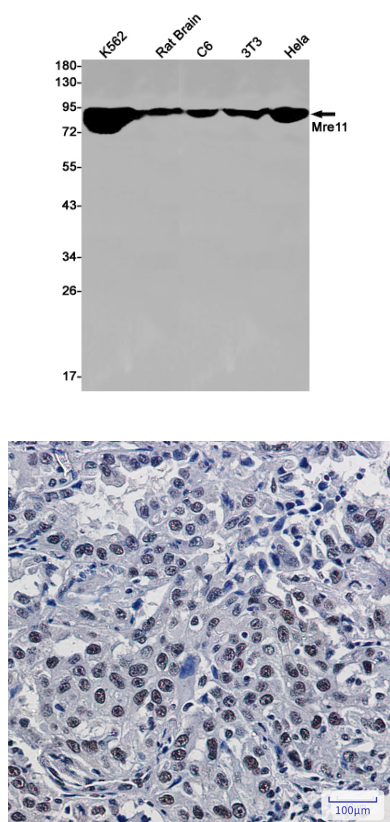
Function	<p>Core component of the MRN complex, which plays a central role in double-strand break (DSB) repair, DNA recombination, maintenance of telomere integrity and meiosis (PubMed:<a href="#">11741547</a>, PubMed:<a href="#">14657032</a>, PubMed:<a href="#">22078559</a>, PubMed:<a href="#">23080121</a>, PubMed:<a href="#">24316220</a>, PubMed:<a href="#">26240375</a>, PubMed:<a href="#">27889449</a>, PubMed:<a href="#">28867292</a>, PubMed:<a href="#">29670289</a>, PubMed:<a href="#">30464262</a>, PubMed:<a href="#">30612738</a>, PubMed:<a href="#">31353207</a>, PubMed:<a href="#">37696958</a>, PubMed:<a href="#">38128537</a>, PubMed:<a href="#">9590181</a>, PubMed:<a href="#">9651580</a>, PubMed:<a href="#">9705271</a>). 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:<a href="#">24316220</a>, PubMed:<a href="#">28867292</a>, PubMed:<a href="#">31353207</a>, PubMed:<a href="#">38128537</a>). 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:<a href="#">24316220</a>, PubMed:<a href="#">27889449</a>, PubMed:<a href="#">28867292</a>, PubMed:<a href="#">36050397</a>, PubMed:<a href="#">38128537</a>). Within the MRN complex, MRE11 possesses both single-strand endonuclease activity and double-strand- specific 3'-5' exonuclease activity (PubMed:<a href="#">11741547</a>, PubMed:<a href="#">22078559</a>, PubMed:<a href="#">24316220</a>, PubMed:<a href="#">26240375</a>, PubMed:<a href="#">27889449</a>, PubMed:<a href="#">29670289</a>, PubMed:<a href="#">31353207</a>, PubMed:<a href="#">36563124</a>, PubMed:<a href="#">9590181</a>, PubMed:<a href="#">9651580</a>, PubMed:<a href="#">9705271</a>). After DSBs, MRE11 is loaded onto DSBs</p>
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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:[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)

## Images



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