

Mre11 Rabbit mAb

Catalog # AP75736

Product Information

Application	WB, IHC-P
Primary Accession	P49959
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	50mM Tris-Glycine(pH 7.4), 0.15M NaCl, 40%Glycerol, 0.01% sodium azide and 0.05% BSA.
Storage	Store at 4°C short term. Aliquot and store at -20°C long term. Avoid freeze/thaw cycles.

Protein Information

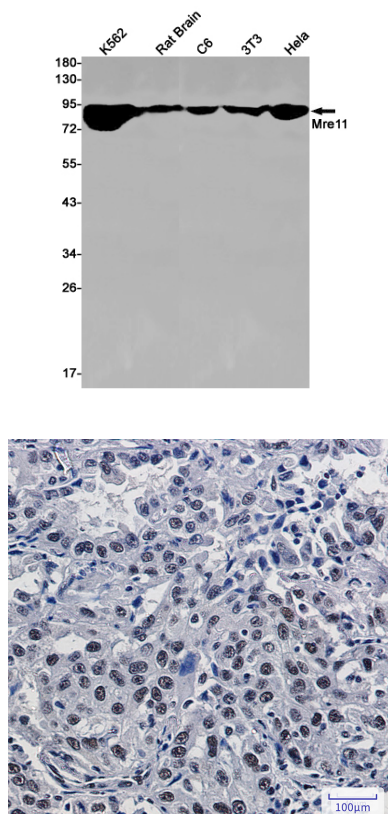
Name	MRE11 {ECO:0000303 PubMed:8530104, ECO:0000312 HGNC:HGNC:7230}
Function	<p>Core component of the MRN complex, which plays a central role in double-strand break (DSB) repair, DNA recombination, maintenance of telomere integrity and meiosis (PubMed:11741547, PubMed:14657032, PubMed:22078559, PubMed:23080121, 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'</p>

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:[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



Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.