

Anti-MRE11 Antibody

Catalog # AP95952

Product Information

Application	WB, IHC, FC
Primary Accession	P49959
Reactivity	Human, Mouse, Rat, Mk
Host	Mouse
Clonality	Monoclonal
Calculated MW	80593

Additional Information

Gene ID	4361
Other Names	HNGS1; MRE11; Double-strand break repair protein MRE11A; MeiotIC, recombination 11 homolog 1; MRE11 homolog 1; MeiotIC, recombination 11 homolog A; MRE11 homolog A
Target/Specificity	Recombinant fusion protein of human MRE11 expressed in E. Coli
Dilution	WB~~WB (1/500 - 1/1000) IHC~~1:100~500 FC~~FC (1/100 - 1/200)
Format	Mouse IgG2b. Liquid in PBS, pH 7.3, 30% glycerol, and 0.01% sodium azide.
Storage	Store at -20 °C.Stable for 12 months from date of receipt

Protein Information

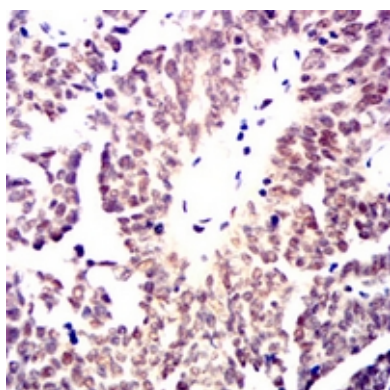
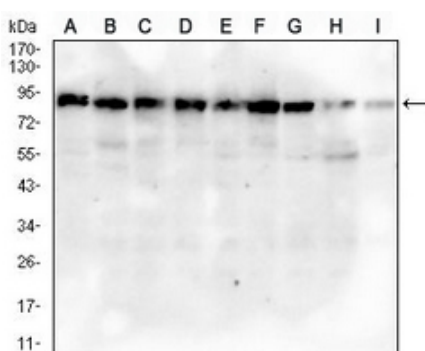
Name	MRE11 {ECO:0000303 PubMed:8530104, ECO:0000312 HGNC:HGNC:7230}
Function	Core component of the MRN complex, which plays a central role in double-strand break (DSB) repair, DNA recombination, maintenance of telomere integrity and meiosis (PubMed: 11741547 , PubMed: 14657032 , PubMed: 22078559 , PubMed: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

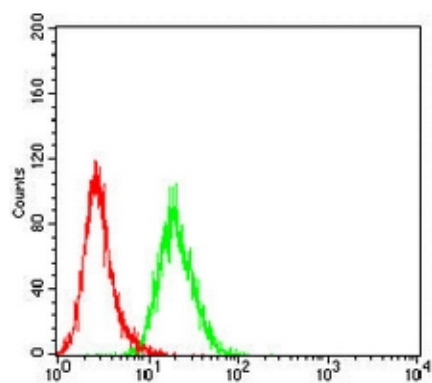
PubMed:[38128537](#)). Within the MRN complex, MRE11 possesses both single-strand endonuclease activity and double-strand- specific 3'-5' exonuclease activity (PubMed:[11741547](#), PubMed:[22078559](#), PubMed:[24316220](#), PubMed:[26240375](#), PubMed:[27889449](#), PubMed:[29670289](#), PubMed:[31353207](#), 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:[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





Flow cytometric analysis of HeLa cells using Anti-MRE11 Antibody (green) and negative control (red).

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