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

phospho-Mre11 (Ser676) Rabbit pAb

Catalog # AP96164

Product Information

Application	WB
Primary Accession	Q9JIM0
Other Accession	Q9JIM0
Reactivity	Human
Predicted	Rat, Mouse, Dog
Host	Rabbit
Clonality	Polyclonal
Calculated MW	80122
Physical State	Liquid
Immunogen	KLH conjugated Synthesised phosphopeptide derived from rat Mre11 around the phosphorylation site of Ser676
Epitope Specificity	SQ(p-S)Q
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SUBCELLULAR LOCATION	Nucleus. Note=Localizes to discrete nuclear foci after treatment with genotoxic agents.
SIMILARITY	Belongs to the MRE11/RAD32 family.
SUBUNIT	Component of the MRN complex composed of two heterodimers RAD50/MRE11A associated with a single NBN. Component of the BASC complex, at least composed of BRCA1, MSH2, MSH6, MLH1, ATM, BLM, RAD50, MRE11A and NBN. Interacts with DCLRE1C/Artemis and DCLRE1B/Apollo.
Post-translational modifications	Phosphorylated upon DNA damage, probably by ATM or ATR.
DISEASE	Defects in MRE11A are a cause of ataxia telangiectasia-like disorder (ATLD) [MIM:604391]. ATLD is a disease with the same clinical feature than ataxia-telangiectasia but with a somewhat milder clinical course.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	This gene encodes a nuclear protein involved in homologous recombination, telomere length maintenance, and DNA double-strand break repair. By itself, the protein has 3' to 5' exonuclease activity and endonuclease activity. The protein forms a complex with the RAD50 homolog; this complex is required for nonhomologous joining of DNA ends and possesses increased single-stranded DNA endonuclease and 3' to 5' exonuclease activities. In conjunction with a DNA ligase, this protein promotes the joining of noncomplementary ends in vitro using short homologies near the ends of the DNA fragments. This gene has a pseudogene on chromosome 3. Alternative splicing of this gene results in two transcript variants encoding different isoforms. [provided by RefSeq, Jul 2008]

Additional Information

Gene ID	64046
Other Names	ATLD; HNGS1; MRE11A; MRE11B; Mre11; MRE11_HUMAN; Meiotic recombination 11 homolog 1 (MRE11 homolog 1); Meiotic recombination 11 homolog A (MRE11 homolog A); 3.1.-.-; MRE11_MOUSE; Meiotic recombination 11 homolog A (MRE11 homolog A | MmMRE11A); MRE11_RAT; Double-strand break repair protein MRE11A; MRE11 double strand break repair nuclease; MRE11 homolog, double strand break repair nuclease; MRE11 meiotic recombination 11 homolog A (S. cerevisiae); MRE11 homolog A, double strand break repair nuclease; AT-like disease; Mre11 (phospho-S676); p-Mre11; phospho-Mre11; Mre11 (phospho-Ser676)
Dilution	WB=1:500-2000
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name	Mre11
Synonyms	Mre11a
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. 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. 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. Within the MRN complex, MRE11 possesses both single-strand endonuclease activity and double-strand-specific 3'-5' exonuclease activity. After DSBs, MRE11 is loaded onto DSBs sites and cleaves DNA by cooperating with RBBP8/CtIP to initiate end resection. MRE11 first endonucleolytically cleaves the 5' strand at DNA DSB ends to prevent non-homologous end joining (NHEJ) and licence HR. 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. RBBP8/CtIP specifically promotes the endonuclease activity of MRE11 to clear protein-DNA adducts and generate clean double-strand break ends. MRE11 endonuclease activity is also enhanced by AGER/RAGE. 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. 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 (By similarity). 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}

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