

MRN Complex Antibody Sampler Kit

Cat# AK0192

Upon receipt, store at -20°C. Avoid freeze/thaw cycles.

PRODUCT DESCRIPTION

The Mre11-Rad50-Nbs1 (MRN) complex is a key mediator of genome maintenance, playing important roles in meiosis, telomere stability at the ends of chromosomes, and the cellular responses to DNA damage. Homodimers of the Mre11 and Rad50 subunits form a tetramer core that binds directly to DNA and associates with the Nbs1 subunit. The complex functions as a sensor of DNA damage and localizes to DNA double-strand breaks. At these DNA lesions, the MRN complex tethers DNA ends and processes free strands via the endonuclease and exonuclease activities of Mre11. In addition to stimulating both homologous recombination and nonhomologous end joining repair DNA pathways, MRN activates DNA damage checkpoint signaling cascades regulating cell cycle progression. In some contexts, MRN is required for ATM activation and downstream phosphorylation of p53, BRCA1, and Chk2. ATM also phosphorylates Mre11, Rad50, and Nbs1 (also known as p95 and Nibrin). Notably, Nbs1 Ser343 and Mre11 Ser676 are phosphorylated by ATM. Phosphorylation modulates function and association with many mediators, some of which include 53BP1, RPA, hSSB1, TRF2, BRCA1, FANCD2, CtP1, Histone H2AX, MDC1, and WRN helicase. Each subunit is essential for mammalian embryonic development, as mice with homozygous-null mutations in Mre11, Nbs1, or Rad50 are lethal. Furthermore, MRN complex function is required in developing lymphocytes for antigen receptor gene recombination initiated by the Rag-1 and Rag-2 recombinases. In humans, Mre11 and Nbs1 mutations cause chromosomal instability and radiosensitivity and are associated with ataxia-telangiectasia-like disorder (ATLD) and Nijmegen breakage syndrome (NBS), respectively. Genomic instability and cancer have been shown to develop in cells with genetic mutations within MRN complex genes.

PRODUCT INCLUDES

Cat No.	Product name	Quantity	Applications	Reactivity	Host
A340597	MRE11 Polyclonal Antibody	20µL	WB, IHC, ELISA	Human, Mouse, Rat, Monkey	Rabbit
A340308	Phospho-MRE11 (Ser264) Polyclonal Antibody	20µL	WB, ELISA	Human, Mouse, Rat	Rabbit
A340655	RAD50 Polyclonal Antibody	20µL	WB, IHC, ELISA	Human, Mouse, Rat	Rabbit

A340609	NBN Polyclonal Antibody	20 μ L	WB, IHC, ELISA	Human, Mouse, Rat	Rabbit
A1013s	Goat Anti-Rabbit IgG (H+L) (peroxidase/HRP conjugated)	120 μ L	WB, ELISA	Rabbit	Goat

PRODUCT USE LIMITATION

These products are intended for research use only.