

Nibrin Rabbit mAb

Catalog # AP75860

Product Information

Application	WB, IP, ICC
Primary Accession	O60934
Host	Rabbit
Clonality	Monoclonal Antibody
Calculated MW	84959

Additional Information

Gene ID	4683
Other Names	NBN
Dilution	WB~~1/500-1/1000 IP~~N/A ICC~~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	NBN (HGNC:7652)
Function	<p>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:10888888, PubMed:15616588, PubMed:18411307, PubMed:18583988, PubMed:18678890, PubMed:19759395, PubMed:23115235, PubMed:28216226, PubMed:28867292, 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:19759395, PubMed:28867292, PubMed:9705271). 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:19759395, PubMed:9705271). The MRN complex possesses single-strand endonuclease activity and double-strand-specific 3'-5' exonuclease activity, which are provided by MRE11, to initiate end resection, which is required for single-strand invasion and recombination (PubMed:19759395, PubMed:28867292, PubMed:9705271). Within the MRN complex, NBN acts as a protein-protein adapter, which specifically recognizes and binds phosphorylated proteins, promoting their recruitment to DNA</p>

damage sites (PubMed:[12419185](#), PubMed:[15616588](#), PubMed:[18411307](#), PubMed:[18582474](#), PubMed:[18583988](#), PubMed:[18678890](#), PubMed:[19759395](#), PubMed:[19804756](#), PubMed:[23762398](#), PubMed:[24534091](#), PubMed:[27814491](#), PubMed:[27889449](#), PubMed:[33836577](#)). Recruits MRE11 and RAD50 components of the MRN complex to DSBs in response to DNA damage (PubMed:[12419185](#), PubMed:[18411307](#), PubMed:[18583988](#), PubMed:[18678890](#), PubMed:[24534091](#), PubMed:[26438602](#)). Promotes the recruitment of PI3/PI4-kinase family members ATM, ATR, and probably DNA-PKcs to the DNA damage sites, activating their functions (PubMed:[15064416](#), PubMed:[15616588](#), PubMed:[15790808](#), PubMed:[16622404](#), PubMed:[22464731](#), PubMed:[30952868](#), PubMed:[35076389](#)). Mediates the recruitment of phosphorylated RBBP8/CtIP to DSBs, leading to cooperation between the MRN complex and RBBP8/CtIP to initiate end resection (PubMed:[19759395](#), PubMed:[27814491](#), PubMed:[27889449](#), PubMed:[33836577](#)). RBBP8/CtIP specifically promotes the endonuclease activity of the MRN complex to clear DNA ends containing protein adducts (PubMed:[27814491](#), PubMed:[27889449](#), PubMed:[30787182](#), PubMed:[33836577](#)). The MRN complex is also required for the processing of R-loops (PubMed:[31537797](#)). NBN also functions in telomere length maintenance via its interaction with TERF2: interaction with TERF2 during G1 phase preventing recruitment of DCLRE1B/Apollo to telomeres (PubMed:[10888888](#), PubMed:[28216226](#)). NBN also promotes DNA repair choice at dysfunctional telomeres: NBN phosphorylation by CDK2 promotes non-homologous end joining repair at telomeres, while unphosphorylated NBN promotes microhomology-mediated end-joining (MMEJ) repair (PubMed:[28216226](#)). Enhances AKT1 phosphorylation possibly by association with the mTORC2 complex (PubMed:[23762398](#)).

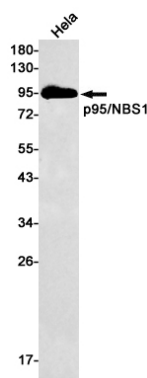
Cellular Location

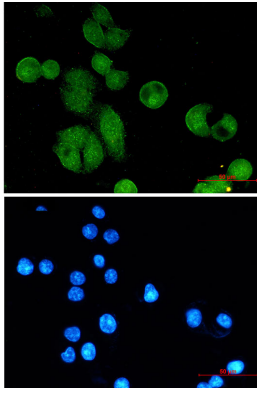
Nucleus. Chromosome. Nucleus, PML body. Chromosome, telomere
 Note=Localizes to discrete nuclear foci after treatment with genotoxic agents (PubMed:[10783165](#), PubMed:[26215093](#), PubMed:[26438602](#)). Localizes to DNA double-strand breaks (DSBs); recruited to DNA damage sites via association with phosphorylated proteins, such as phosphorylated H2AX, phosphorylated MDC1 and phosphorylated RAD17 (PubMed:[12419185](#), PubMed:[18411307](#), PubMed:[18582474](#), PubMed:[18583988](#), PubMed:[18678890](#), PubMed:[19338747](#), PubMed:[23115235](#), PubMed:[24534091](#), PubMed:[26438602](#)). Acetylation of 'Lys-5' of histone H2AX (H2AXK5ac) promotes NBN/NBS1 assembly at the sites of DNA damage (PubMed:[26438602](#)).

Tissue Location

Ubiquitous (PubMed:[9590180](#)). Expressed at high levels in testis (PubMed:[9590180](#)).

Images





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