

# NBN Antibody (C-term)

Affinity Purified Rabbit Polyclonal Antibody (Pab)

Catalog # AP11776b

## Product Information

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<b>Application</b>	WB, IF, FC, E
<b>Primary Accession</b>	<a href="#">O60934</a>
<b>Other Accession</b>	<a href="#">NP_002476.2</a>
<b>Reactivity</b>	Human
<b>Host</b>	Rabbit
<b>Clonality</b>	Polyclonal
<b>Isotype</b>	Rabbit IgG
<b>Clone Names</b>	RB19072
<b>Calculated MW</b>	84959
<b>Antigen Region</b>	602-630

## Additional Information

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<b>Gene ID</b>	4683
<b>Other Names</b>	Nibrin, Cell cycle regulatory protein p95, Nijmegen breakage syndrome protein 1, NBN, NBS, NBS1, P95
<b>Target/Specificity</b>	This NBN antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 602-630 amino acids from the C-terminal region of human NBN.
<b>Dilution</b>	WB~~1:1000 IF~~1:10~50 FC~~1:10~50 E~~Use at an assay dependent concentration.
<b>Format</b>	Purified polyclonal antibody supplied in PBS with 0.05% (V/V) Proclin 300. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.
<b>Storage</b>	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
<b>Precautions</b>	NBN Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

## Protein Information

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<b>Name</b>	NBN ( <a href="#">HGNC:7652</a> )
<b>Function</b>	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 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](#)).

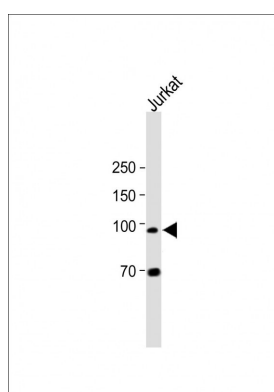
## Background

Mutations in this gene are associated with Nijmegen breakage syndrome, an autosomal recessive chromosomal instability syndrome characterized by microcephaly, growth retardation, immunodeficiency, and cancer predisposition. The encoded protein is a member of the MRE11/RAD50 double-strand break repair complex which consists of 5 proteins. This gene product is thought to be involved in DNA double-strand break repair and DNA damage-induced checkpoint activation.

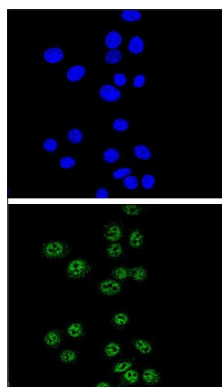
## References

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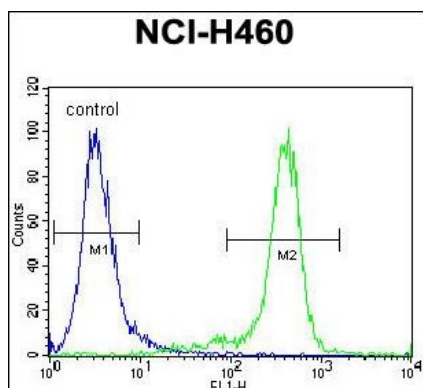
## Images



All lanes : Anti-NBN Antibody (C-term) at 1:2000 dilution  
Lane 1: Jurkat whole cell lysate Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated (ASP1615) at 1/15000 dilution. Observed band size : 100kDa Blocking/Dilution buffer: 13% NFDm/TBST.



Confocal immunofluorescent analysis of NBN Antibody (C-term) (Cat. #AP11776b) with HeLa cell followed by Alexa Fluor® 488-conjugated goat anti-rabbit IgG (green). DAPI was used to stain the cell nuclear (blue).



NBN Antibody (C-term) (Cat. #AP11776b) flow cytometric analysis of NCI-H460 cells (right histogram) compared to a negative control cell (left histogram). FITC-conjugated goat-anti-rabbit secondary antibodies were used for the analysis.

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