

p95/NBS1 Antibody

Rabbit mAb

Catalog # AP90328

Product Information

Application	WB, IHC, IF, FC, ICC, IP, IHF
Primary Accession	O60934
Reactivity	Rat, Human, Mouse
Clonality	Monoclonal
Other Names	Cell cycle regulatory protein P95; NBN; NBS; NIBRIN; NIJMEGEN BREAKAGE syndrome protein 1; p95-NBS1;
Isotype	Rabbit IgG
Host	Rabbit
Calculated MW	84959

Additional Information

Dilution	WB 1:1000~1:2000 IHC 1:50~1:200 ICC/IF 1:50~1:200 IP 1:50 FC 1:50
Purification	Affinity-chromatography
Immunogen	A synthesized peptide derived from human p95/NBS1
Description	NBS1 is a member of the MRE11/RAD50 double-strand break repair complex. Involved in DNA double-strand break repair and DNA damage-induced checkpoint activation. Mutation results in the Nijmegen breakage syndrome (NBS), an autosomal recessive chromosomal instability syndrome.
Storage Condition and Buffer	Rabbit IgG in phosphate buffered saline , pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol. Store at +4°C short term. Store at -20°C long term. Avoid freeze / thaw cycle.

Protein Information

Name	NBN (HGNC:7652)
Function	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](#)).

Images

Western blot analysis of p95/NBS1 expression in HeLa cell lysate.

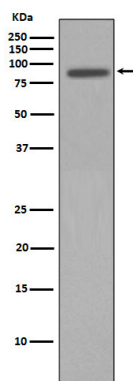


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Immunohistochemical analysis of paraffin-embedded rat heart, using p95/NBS1 Antibody.

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