

# Anti-NBN / Nibrin Antibody

Rabbit Anti Human Polyclonal Antibody

Catalog # ALS18320

## Product Information

|                   |                        |
|-------------------|------------------------|
| Application       | WB, IHC-P              |
| Primary Accession | <a href="#">O60934</a> |
| Predicted         | Human, Mouse, Rat      |
| Host              | Rabbit                 |
| Clonality         | Polyclonal             |
| Isotype           | IgG                    |
| Calculated MW     | 84959                  |

## Additional Information

|                          |                                                                                                              |
|--------------------------|--------------------------------------------------------------------------------------------------------------|
| Gene ID                  | 4683                                                                                                         |
| Alias Symbol             | NBN                                                                                                          |
| Other Names              | NBN, ATV, AT-V2, Nibrin, NBS1, AT-V1, NBS, p95                                                               |
| Target/Specificity       | Human NBN / NBS1 / Nibrin                                                                                    |
| Reconstitution & Storage | Affinity purified                                                                                            |
| Precautions              | Anti-NBN / Nibrin Antibody is for research use only and not for use in diagnostic or therapeutic procedures. |

## Protein Information

|          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name     | NBN ( <a href="#">HGNC:7652</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 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:<a href="#">10888888</a>, PubMed:<a href="#">15616588</a>, PubMed:<a href="#">18411307</a>, PubMed:<a href="#">18583988</a>, PubMed:<a href="#">18678890</a>, PubMed:<a href="#">19759395</a>, PubMed:<a href="#">23115235</a>, PubMed:<a href="#">28216226</a>, PubMed:<a href="#">28867292</a>, PubMed:<a href="#">9705271</a>). 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:<a href="#">19759395</a>, PubMed:<a href="#">28867292</a>, PubMed:<a href="#">9705271</a>). 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:<a href="#">19759395</a>, PubMed:<a href="#">9705271</a>). 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,</p> |

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](#)).

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