

**Anti-p95/NBS1 NBN Rabbit Monoclonal Antibody**  
Catalog # ABO13919**Specification****Anti-p95/NBS1 NBN Rabbit Monoclonal Antibody - Product Information**

Application	WB, IHC, IF, ICC, IP, FC
Primary Accession	<a href="#">O60934</a>
Host	Rabbit
Isotype	Rabbit IgG
Reactivity	Rat, Human, Mouse
Clonality	Monoclonal
Format	Liquid

**Description**

Anti-p95/NBS1 NBN Rabbit Monoclonal Antibody . Tested in WB, IHC, ICC/IF, IP, Flow Cytometry applications. This antibody reacts with Human, Mouse, Rat.

**Anti-p95/NBS1 NBN Rabbit Monoclonal Antibody - Additional Information**

**Gene ID** 4683

**Other Names**

Nibrin, Cell cycle regulatory protein p95, Nijmegen breakage syndrome protein 1, hNbs1, NBN ([HGNC:7652](http://www.genenames.org/cgi-bin/gene_symbol_report?hgnc_id=7652))

**Calculated MW**

84959 MW KDa

**Application Details**

WB 1:1000-1:2000<br>IHC 1:50-1:200<br>ICC/IF 1:50-1:200<br>IP 1:50<br>FC 1:50

**Subcellular Localization**

Nucleus. Nucleus, PML body. Chromosome, telomere. Localizes to discrete nuclear foci after treatment with genotoxic agents..

**Tissue Specificity**

Ubiquitous. Expressed at high levels in testis.

**Contents**

Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA.

**Immunogen**

A synthesized peptide derived from human p95/NBS1

**Purification**

Affinity-chromatography

Storage

Store at -20°C for one year. For short term

storage and frequent use, store at 4°C for up to one month. Avoid repeated freeze-thaw cycles.

## Anti-p95/NBS1 NBN Rabbit Monoclonal Antibody - 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:<a href="http://www.uniprot.org/citations/10888888" target="\_blank">10888888</a>, PubMed:<a href="http://www.uniprot.org/citations/15616588" target="\_blank">15616588</a>, PubMed:<a href="http://www.uniprot.org/citations/18411307" target="\_blank">18411307</a>, PubMed:<a href="http://www.uniprot.org/citations/18583988" target="\_blank">18583988</a>, PubMed:<a href="http://www.uniprot.org/citations/18678890" target="\_blank">18678890</a>, PubMed:<a href="http://www.uniprot.org/citations/19759395" target="\_blank">19759395</a>, PubMed:<a href="http://www.uniprot.org/citations/23115235" target="\_blank">23115235</a>, PubMed:<a href="http://www.uniprot.org/citations/28216226" target="\_blank">28216226</a>, PubMed:<a href="http://www.uniprot.org/citations/28867292" target="\_blank">28867292</a>, PubMed:<a href="http://www.uniprot.org/citations/9705271" target="\_blank">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="http://www.uniprot.org/citations/19759395" target="\_blank">19759395</a>, PubMed:<a href="http://www.uniprot.org/citations/28867292" target="\_blank">28867292</a>, PubMed:<a href="http://www.uniprot.org/citations/9705271" target="\_blank">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="http://www.uniprot.org/citations/19759395" target="\_blank">19759395</a>, PubMed:<a href="http://www.uniprot.org/citations/9705271" target="\_blank">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, which is required for single-strand invasion and recombination (PubMed:<a href="http://www.uniprot.org/citations/19759395" target="\_blank">19759395</a>, PubMed:<a href="http://www.uniprot.org/citations/28867292" target="\_blank">28867292</a>, PubMed:<a href="http://www.uniprot.org/citations/9705271" target="\_blank">9705271</a>). 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:<a href="http://www.uniprot.org/citations/12419185" target="\_blank">12419185</a>, PubMed:<a href="http://www.uniprot.org/citations/15616588" target="\_blank">15616588</a>, PubMed:<a href="http://www.uniprot.org/citations/18411307" target="\_blank">18411307</a>, PubMed:<a href="http://www.uniprot.org/citations/18582474" target="\_blank">18582474</a>, PubMed:<a href="http://www.uniprot.org/citations/18583988" target="\_blank">18583988</a>, PubMed:<a href="http://www.uniprot.org/citations/18678890" target="\_blank">18678890</a>, PubMed:<a href="http://www.uniprot.org/citations/19759395" target="\_blank">19759395</a>, PubMed:<a href="http://www.uniprot.org/citations/19804756" target="\_blank">19804756</a>, PubMed:<a href="http://www.uniprot.org/citations/23762398" target="\_blank">23762398</a>, PubMed:<a href="http://www.uniprot.org/citations/24534091" target="\_blank">24534091</a>, PubMed:<a href="http://www.uniprot.org/citations/27814491" target="\_blank">27814491</a>, PubMed:<a href="http://www.uniprot.org/citations/27889449" target="\_blank">27889449</a>, PubMed:<a href="http://www.uniprot.org/citations/33836577" target="\_blank">33836577</a>). Recruits MRE11 and RAD50 components of the MRN complex to DSBs in response to DNA damage (PubMed:<a href="http://www.uniprot.org/citations/12419185" target="\_blank">12419185</a>, PubMed:<a href="http://www.uniprot.org/citations/18411307" target="\_blank">18411307</a>, PubMed:<a href="http://www.uniprot.org/citations/18583988" target="\_blank">18583988</a>, PubMed:<a href="http://www.uniprot.org/citations/19759395" target="\_blank">19759395</a>, PubMed:<a href="http://www.uniprot.org/citations/28867292" target="\_blank">28867292</a>, PubMed:<a href="http://www.uniprot.org/citations/9705271" target="\_blank">9705271</a>).

PubMed:<a href="http://www.uniprot.org/citations/18678890" target="\_blank">18678890</a>, PubMed:<a href="http://www.uniprot.org/citations/24534091" target="\_blank">24534091</a>, PubMed:<a href="http://www.uniprot.org/citations/26438602" target="\_blank">26438602</a>). Promotes the recruitment of PI3/PI4-kinase family members ATM, ATR, and probably DNA-PKcs to the DNA damage sites, activating their functions (PubMed:<a href="http://www.uniprot.org/citations/15064416" target="\_blank">15064416</a>, PubMed:<a href="http://www.uniprot.org/citations/15616588" target="\_blank">15616588</a>, PubMed:<a href="http://www.uniprot.org/citations/15790808" target="\_blank">15790808</a>, PubMed:<a href="http://www.uniprot.org/citations/16622404" target="\_blank">16622404</a>, PubMed:<a href="http://www.uniprot.org/citations/22464731" target="\_blank">22464731</a>, PubMed:<a href="http://www.uniprot.org/citations/30952868" target="\_blank">30952868</a>, PubMed:<a href="http://www.uniprot.org/citations/35076389" target="\_blank">35076389</a>). Mediates the recruitment of phosphorylated RBBP8/CtIP to DSBs, leading to cooperation between the MRN complex and RBBP8/CtIP to initiate end resection (PubMed:<a href="http://www.uniprot.org/citations/19759395" target="\_blank">19759395</a>, PubMed:<a href="http://www.uniprot.org/citations/27814491" target="\_blank">27814491</a>, PubMed:<a href="http://www.uniprot.org/citations/27889449" target="\_blank">27889449</a>, PubMed:<a href="http://www.uniprot.org/citations/33836577" target="\_blank">33836577</a>). RBBP8/CtIP specifically promotes the endonuclease activity of the MRN complex to clear DNA ends containing protein adducts (PubMed:<a href="http://www.uniprot.org/citations/27814491" target="\_blank">27814491</a>, PubMed:<a href="http://www.uniprot.org/citations/27889449" target="\_blank">27889449</a>, PubMed:<a href="http://www.uniprot.org/citations/30787182" target="\_blank">30787182</a>, PubMed:<a href="http://www.uniprot.org/citations/33836577" target="\_blank">33836577</a>). The MRN complex is also required for the processing of R-loops (PubMed:<a href="http://www.uniprot.org/citations/31537797" target="\_blank">31537797</a>). 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:<a href="http://www.uniprot.org/citations/10888888" target="\_blank">10888888</a>, PubMed:<a href="http://www.uniprot.org/citations/28216226" target="\_blank">28216226</a>). NBN also promotes DNA repair choice at dysfunctional telomeres: NBN phosphorylation by CK2 promotes non-homologous end joining repair at telomeres, while unphosphorylated NBN promotes microhomology-mediated end-joining (MMEJ) repair (PubMed:<a href="http://www.uniprot.org/citations/28216226" target="\_blank">28216226</a>). Enhances AKT1 phosphorylation possibly by association with the mTORC2 complex (PubMed:<a href="http://www.uniprot.org/citations/23762398" target="\_blank">23762398</a>).

### 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).

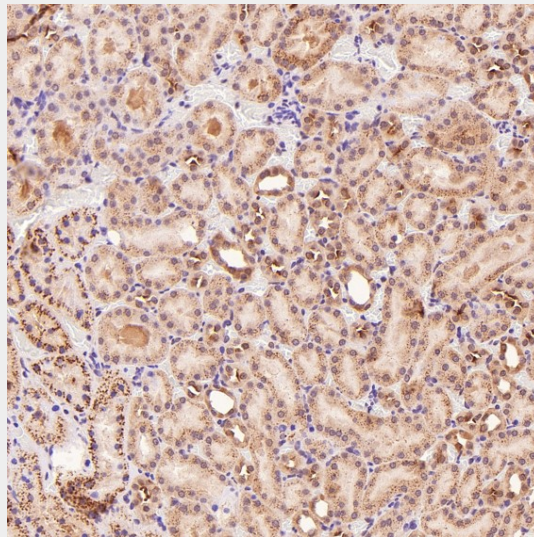
### Anti-p95/NBS1 NBN Rabbit Monoclonal Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

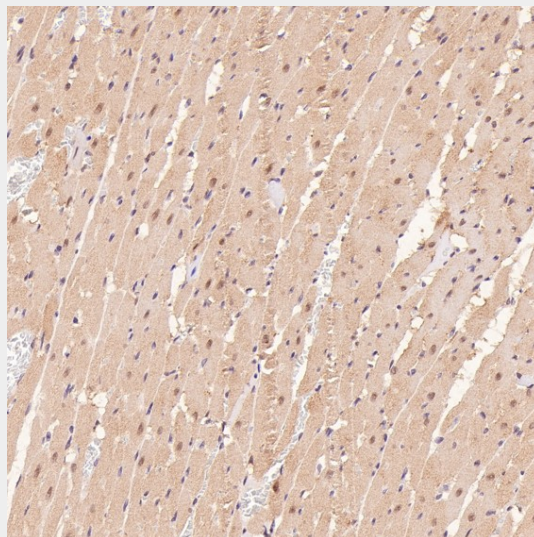
- [Western Blot](#)
- [Blocking Peptides](#)

- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

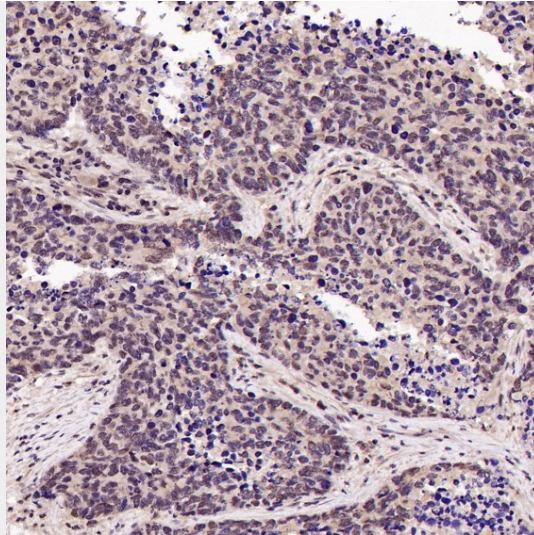
#### Anti-p95/NBS1 NBN Rabbit Monoclonal Antibody - Images



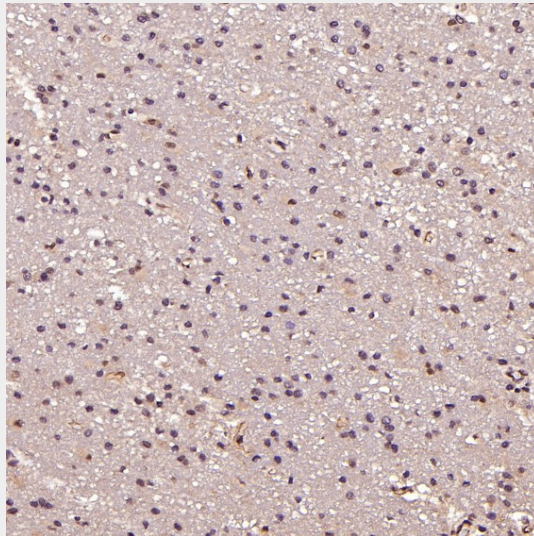
Immunohistochemical analysis of paraffin-embedded Rat kidney, using the Antibody at 1:100 dilution.



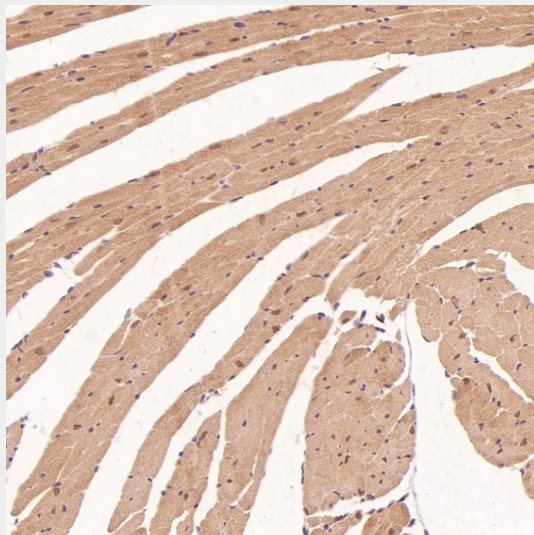
Immunohistochemical analysis of paraffin-embedded Rat heart, using the Antibody at 1:100 dilution.



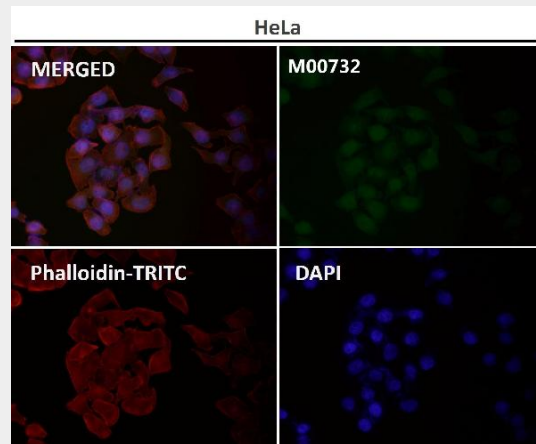
Immunohistochemical analysis of paraffin-embedded Human lung large cell cancer, using the Antibody at 1:100 dilution.



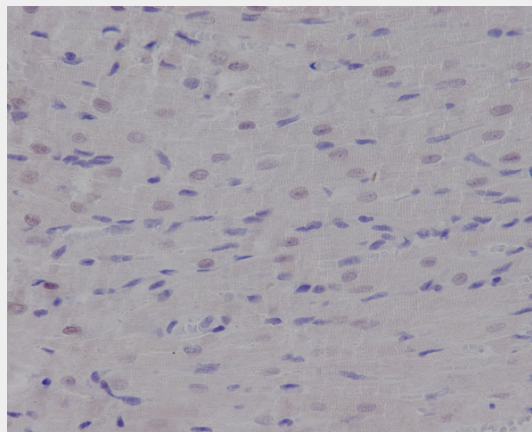
Immunohistochemical analysis of paraffin-embedded Human glioblastoma, using the Antibody at 1:100 dilution.



Immunohistochemical analysis of paraffin-embedded Mouse heart, using the Antibody at 1:100 dilution.



Immunofluorescent analysis using the Antibody at 1:50 dilution.



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

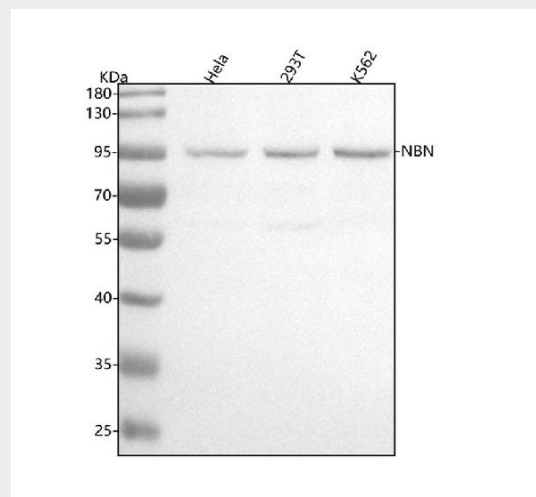


Figure 1. Western blot analysis of NBN using anti-NBN antibody (M00732). Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel) / 90V (Resolving gel) for 2-3 hours. The sample well of each lane was loaded with 30 ug of sample under reducing conditions.

Lane 1: human HeLa whole cell lysates,  
 Lane 2: human 293T whole cell lysates,

Lane 3: human K562 whole cell lysates.

After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-NBN antigen affinity purified monoclonal antibody (Catalog # M00732) at 1:1000 overnight at 4°C, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal is developed using an Enhanced Chemiluminescent detection (ECL) kit (Catalog # EK1002) with Tanon 5200 system. A specific band was detected for NBN at approximately 95 kDa. The expected band size for NBN is at 85 kDa.