

**NBN Antibody**  
**Purified Mouse Monoclonal Antibody**  
**Catalog # AO1911a****Specification****NBN Antibody - Product Information**

Application	E, WB, IF, FC, IHC
Primary Accession	<a href="#">O60934</a>
Reactivity	Human, Rat
Host	Mouse
Clonality	Monoclonal
Isotype	IgG2a
Calculated MW	85kDa KDa

**Description**

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.

**Immunogen**

Purified recombinant fragment of human NBN (AA: 467-615) expressed in E. Coli.

**Formulation**

Purified antibody in PBS with 0.05% sodium azide.

**NBN Antibody - Additional Information**

**Gene ID** 4683

**Other Names**

Nibrin, Cell cycle regulatory protein p95, Nijmegen breakage syndrome protein 1, NBN, NBS, NBS1, P95

**Dilution**

E~~1/10000  
WB~~1/500 - 1/2000  
IF~~1/200 - 1/1000  
FC~~1/200 - 1/400  
IHC~~1/200 - 1/1000

**Storage**

Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.

**Precautions**

NBN Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

## **NBN Antibody - Protein Information**

**Name** NBN

**Synonyms** NBS, NBS1, P95

### **Function**

Component of the MRE11-RAD50-NBN (MRN complex) which plays a critical role in the cellular response to DNA damage and the maintenance of chromosome integrity. The complex is involved in double-strand break (DSB) repair, DNA recombination, maintenance of telomere integrity, cell cycle checkpoint control and meiosis. The complex possesses single-strand endonuclease activity and double-strand-specific 3'-5' exonuclease activity, which are provided by MRE11. RAD50 may be required to bind DNA ends and hold them in close proximity. NBN modulate the DNA damage signal sensing by recruiting PI3/PI4-kinase family members ATM, ATR, and probably DNA-PKcs to the DNA damage sites and activating their functions. It can also recruit MRE11 and RAD50 to the proximity of DSBs by an interaction with the histone H2AX. NBN also functions in telomere length maintenance by generating the 3' overhang which serves as a primer for telomerase dependent telomere elongation. NBN is a major player in the control of intra-S-phase checkpoint and there is some evidence that NBN is involved in G1 and G2 checkpoints. The roles of NBS1/MRN encompass DNA damage sensor, signal transducer, and effector, which enable cells to maintain DNA integrity and genomic stability. Forms a complex with RBBP8 to link DNA double-strand break sensing to resection. Enhances AKT1 phosphorylation possibly by association with the mTORC2 complex.

### **Cellular Location**

Nucleus. Nucleus, PML body. Chromosome, telomere. Chromosome Note=Localizes to discrete nuclear foci after treatment with genotoxic agents (PubMed:26438602, PubMed:10783165, PubMed:26215093). 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).

## **NBN 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](#)

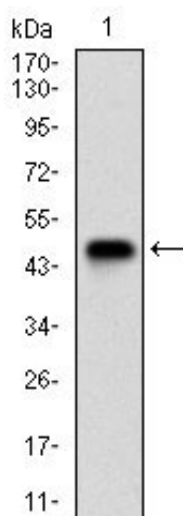
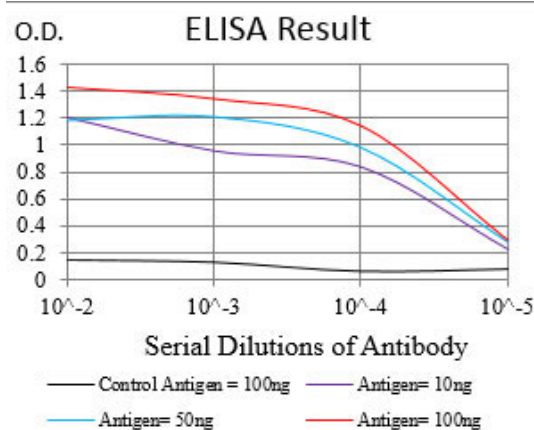


Figure 1: Western blot analysis using NBN mAb against human NBN (AA: 467-615) recombinant protein. (Expected MW is 44.3 kDa)

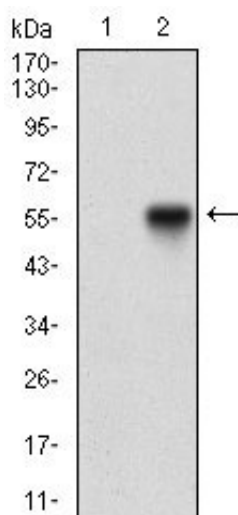


Figure 2: Western blot analysis using NBN mAb against HEK293 (1) and NBN (AA: 467-615)-hIgGFc transfected HEK293 (2) cell lysate.

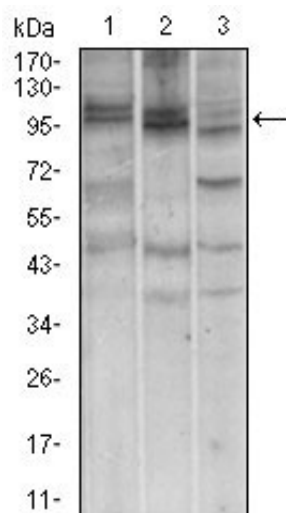


Figure 3: Western blot analysis using NBN mouse mAb against A549 (1), Jurkat (2) and PC-12 (3) cell lysate.

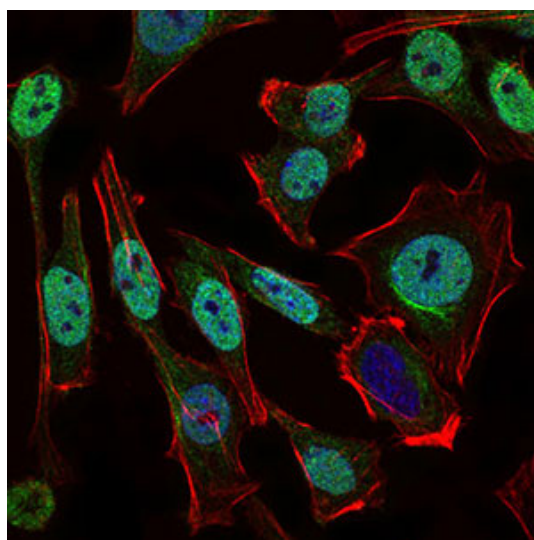


Figure 4: Immunofluorescence analysis of HeLa cells using NBN mouse mAb (green). Blue: DRAQ5 fluorescent DNA dye. Red: Actin filaments have been labeled with Alexa Fluor-555 phalloidin. Secondary antibody from Fisher (Cat#: 35503)

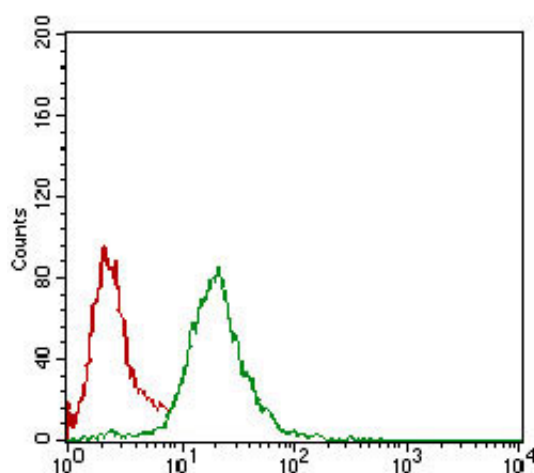


Figure 5: Flow cytometric analysis of HeLa cells using NBN mouse mAb (green) and negative control (red).

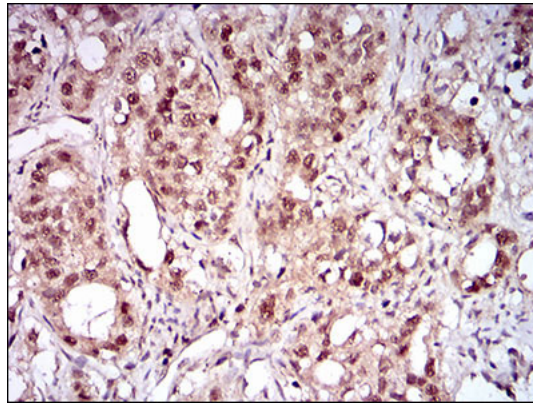


Figure 6: Immunohistochemical analysis of paraffin-embedded cervical cancer tissues using NBN mouse mAb with DAB staining.

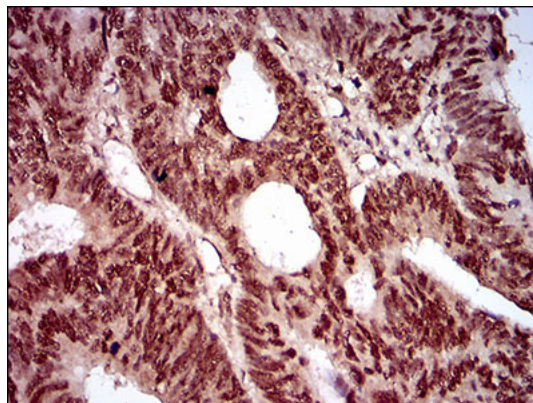


Figure 7: Immunohistochemical analysis of paraffin-embedded rectum cancer tissues using NBN mouse mAb with DAB staining.

#### **NBN Antibody - Background**

This gene is a member of the solute carrier family 2 (facilitated glucose transporter) family and encodes a protein that functions as an insulin-regulated facilitative glucose transporter. In the absence of insulin, this integral membrane protein is sequestered within the cells of muscle and adipose tissue. Within minutes of insulin stimulation, the protein moves to the cell surface and begins to transport glucose across the cell membrane. Mutations in this gene have been associated with noninsulin-dependent diabetes mellitus (NIDDM). ; ; ;

#### **NBN Antibody - References**

1. Fam Cancer. 2012 Dec;11(4):595-600.
2. Mol Carcinog. 2011 Sep;50(9):689-96.