

**NIBRIN Antibody**  
**Catalog # ASC11482****Specification**

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**NIBRIN Antibody - Product Information**

|                   |  |
|-------------------|--|
| Application       | WB, IHC, IF  |
| Primary Accession | <a href="#">O60934</a>   |
| Other Accession   | <a href="#">NP_002476</a> , <a href="#">33356172</a>   |
| Reactivity        | Human, Mouse   |
| Host              | Rabbit   |
| Clonality         | Polyclonal   |
| Isotype           | IgG  |
| Application Notes | NIBRIN antibody can be used for detection of NIBRIN by Western blot at 1 µg/mL. Antibody can also be used for immunohistochemistry starting at 2.5 µg/mL. For immunofluorescence start at 2.5 µg/mL. |

**NIBRIN Antibody - Additional Information**Gene ID **4683****Target/Specificity**

NBN; Two alternatively spliced transcript isoforms of NIBRIN are known to exist.

**Reconstitution & Storage**

NIBRIN antibody can be stored at 4°C for three months and -20°C, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.

**Precautions**

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

**NIBRIN 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**

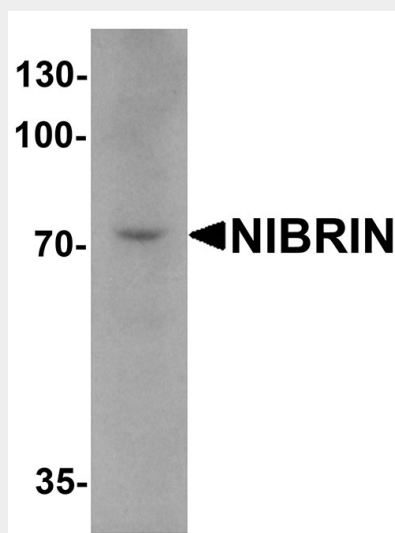
Ubiquitous (PubMed:9590180). Expressed at high levels in testis (PubMed:9590180).

### **NIBRIN Antibody - Protocols**

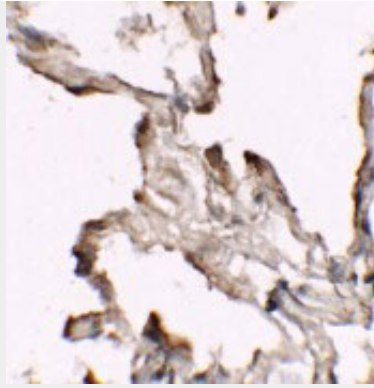
Provided below are standard protocols that you may find useful for product applications.

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

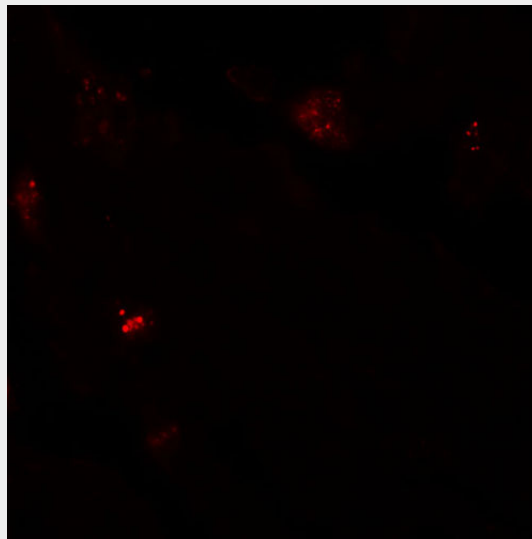
### **NIBRIN Antibody - Images**



Western blot analysis of NIBRIN in mouse lung tissue lysate with NIBRIN antibody at 1 µg/mL.



Immunohistochemistry of NIBRIN (CT) in human lung tissue with NIBRIN (CT) antibody at 2.5 µg/mL.



Immunofluorescence of NIBRIN in human lung tissue with NIBRIN antibody at 20 µg/mL.

### **NIBRIN Antibody - Background**

**NIBRIN Antibody:** NIBRIN (NBN) is a member of the double-strand break repair complex MRE11/RAD50/NBN (MRN) which is involved in DNA double-strand break repair, DNA damage-induced checkpoint activation and plays a critical role in the maintenance of chromosome integrity. NIBRIN contains two modules found in cell cycle checkpoint proteins, a forkhead-associated domain adjacent to a breast cancer carboxy-terminal domain. Mutations in this gene are associated with Nijmegen breakage syndrome and maybe the cause of cancer predisposition and aplastic anemia.

### **NIBRIN Antibody - References**

Carney JP, Maser RS, Olivares H, et al. The hMre11/hRad50 protein complex and Nijmegen breakage syndrome: linkage of double-strand break repair to the cellular DNA damage response. *Cell* 1998; 93:477-86

Marcelain K, De La Torre C, Gonzalez P, et al. Roles of nibrin and AtM/ATR kinases on the G2 checkpoint under endogenous or radio-induced DNA damage. *Biol. Res.* 2005; 38:179-85.

Varon R, Vissinga C, Platzer M, et al. Nibrin, a novel DNA double-strand break repair protein, is mutated in Nijmegen breakage syndrome. *Cell* 1998; 93:467-76.

Heikkinen K, Karppinen SM, Soini Y. et al. Mutation screening of Mre11 complex genes: indication of RAD50 involvement in breast and ovarian cancer susceptibility. *J. Med. Genet.* 2003; 40:E131.

