

**LMNA Antibody**  
**Purified Mouse Monoclonal Antibody**  
**Catalog # AO1597a****Specification****LMNA Antibody - Product Information**

Application	<b>E, WB, IHC</b>
Primary Accession	<a href="#">P02545</a>
Reactivity	<b>Human, Mouse, Rat</b>
Host	<b>Mouse</b>
Clonality	<b>Monoclonal</b>
Isotype	<b>IgG1</b>
Calculated MW	<b>74kDa KDa</b>

**Description**

The nuclear lamina consists of a two-dimensional matrix of proteins located next to the inner nuclear membrane. The lamin family of proteins make up the matrix and are highly conserved in evolution. During mitosis, the lamina matrix is reversibly disassembled as the lamin proteins are phosphorylated. Lamin proteins are thought to be involved in nuclear stability, chromatin structure and gene expression. Vertebrate lamins consist of two types, A and B. Through alternate splicing, this gene encodes three type A lamin isoforms. Mutations in this gene lead to several diseases: Emery-Dreifuss muscular dystrophy, familial partial lipodystrophy, limb girdle muscular dystrophy, dilated cardiomyopathy, Charcot-Marie-Tooth disease, and Hutchinson-Gilford progeria syndrome.

**Immunogen**

Purified recombinant fragment of human LMNA expressed in E. Coli.

**Formulation**

Ascitic fluid containing 0.03% sodium azide.

**LMNA Antibody - Additional Information**

**Gene ID** 4000

**Other Names**

Prelamin-A/C, Lamin-A/C, 70 kDa lamin, Renal carcinoma antigen NY-REN-32, LMNA, LMN1

**Dilution**

E~~1/10000

WB~~1/500 - 1/2000

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**

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

## LMNA Antibody - Protein Information

Name LMNA

Synonyms LMN1

### Function

[Lamin-A/C]: Lamins are intermediate filament proteins that assemble into a filamentous meshwork, and which constitute the major components of the nuclear lamina, a fibrous layer on the nucleoplasmic side of the inner nuclear membrane (PubMed:<a href="http://www.uniprot.org/citations/10080180" target="\_blank">10080180</a>, PubMed:<a href="http://www.uniprot.org/citations/10580070" target="\_blank">10580070</a>, PubMed:<a href="http://www.uniprot.org/citations/10587585" target="\_blank">10587585</a>, PubMed:<a href="http://www.uniprot.org/citations/10814726" target="\_blank">10814726</a>, PubMed:<a href="http://www.uniprot.org/citations/11799477" target="\_blank">11799477</a>, PubMed:<a href="http://www.uniprot.org/citations/12075506" target="\_blank">12075506</a>, PubMed:<a href="http://www.uniprot.org/citations/12927431" target="\_blank">12927431</a>, PubMed:<a href="http://www.uniprot.org/citations/15317753" target="\_blank">15317753</a>, PubMed:<a href="http://www.uniprot.org/citations/18551513" target="\_blank">18551513</a>, PubMed:<a href="http://www.uniprot.org/citations/18611980" target="\_blank">18611980</a>, PubMed:<a href="http://www.uniprot.org/citations/2188730" target="\_blank">2188730</a>, PubMed:<a href="http://www.uniprot.org/citations/22431096" target="\_blank">22431096</a>, PubMed:<a href="http://www.uniprot.org/citations/2344612" target="\_blank">2344612</a>, PubMed:<a href="http://www.uniprot.org/citations/23666920" target="\_blank">23666920</a>, PubMed:<a href="http://www.uniprot.org/citations/24741066" target="\_blank">24741066</a>, PubMed:<a href="http://www.uniprot.org/citations/31434876" target="\_blank">31434876</a>, PubMed:<a href="http://www.uniprot.org/citations/31548606" target="\_blank">31548606</a>, PubMed:<a href="http://www.uniprot.org/citations/37788673" target="\_blank">37788673</a>, PubMed:<a href="http://www.uniprot.org/citations/37832547" target="\_blank">37832547</a>). Lamins provide a framework for the nuclear envelope, bridging the nuclear envelope and chromatin, thereby playing an important role in nuclear assembly, chromatin organization, nuclear membrane and telomere dynamics (PubMed:<a href="http://www.uniprot.org/citations/10080180" target="\_blank">10080180</a>, PubMed:<a href="http://www.uniprot.org/citations/10580070" target="\_blank">10580070</a>, PubMed:<a href="http://www.uniprot.org/citations/10587585" target="\_blank">10587585</a>, PubMed:<a href="http://www.uniprot.org/citations/10814726" target="\_blank">10814726</a>, PubMed:<a href="http://www.uniprot.org/citations/11799477" target="\_blank">11799477</a>, PubMed:<a href="http://www.uniprot.org/citations/12075506" target="\_blank">12075506</a>, PubMed:<a href="http://www.uniprot.org/citations/12927431" target="\_blank">12927431</a>, PubMed:<a href="http://www.uniprot.org/citations/15317753" target="\_blank">15317753</a>, PubMed:<a href="http://www.uniprot.org/citations/18551513" target="\_blank">18551513</a>, PubMed:<a href="http://www.uniprot.org/citations/18611980" target="\_blank">18611980</a>, PubMed:<a href="http://www.uniprot.org/citations/22431096" target="\_blank">22431096</a>, PubMed:<a href="http://www.uniprot.org/citations/23666920" target="\_blank">23666920</a>, PubMed:<a href="http://www.uniprot.org/citations/24741066" target="\_blank">24741066</a>, PubMed:<a href="http://www.uniprot.org/citations/31548606" target="\_blank">31548606</a>, PubMed:<a href="http://www.uniprot.org/citations/37788673" target="\_blank">37788673</a>, PubMed:<a href="http://www.uniprot.org/citations/37832547" target="\_blank">37832547</a>). Lamin A and C also regulate matrix stiffness by conferring nuclear mechanical properties (PubMed:<a href="http://www.uniprot.org/citations/23990565" target="\_blank">23990565</a>, PubMed:<a href="http://www.uniprot.org/citations/25127216" target="\_blank">25127216</a>). The structural integrity of the lamina is strictly controlled by the cell cycle, as seen by the disintegration and formation of the nuclear envelope in prophase and telophase, respectively (PubMed:<a href="http://www.uniprot.org/citations/2188730" target="\_blank">2188730</a>, PubMed:<a href="http://www.uniprot.org/citations/2344612" target="\_blank">2344612</a>). Lamin A and C are present in equal amounts in the lamina of mammals (PubMed:<a href="http://www.uniprot.org/citations/10080180" target="\_blank">10080180</a>, PubMed:<a href="http://www.uniprot.org/citations/10580070" target="\_blank">10580070</a>

target="\_blank">10580070</a>, PubMed:<a href="http://www.uniprot.org/citations/10587585" target="\_blank">10587585</a>, PubMed:<a href="http://www.uniprot.org/citations/10814726" target="\_blank">10814726</a>, PubMed:<a href="http://www.uniprot.org/citations/11799477" target="\_blank">11799477</a>, PubMed:<a href="http://www.uniprot.org/citations/12075506" target="\_blank">12075506</a>, PubMed:<a href="http://www.uniprot.org/citations/12927431" target="\_blank">12927431</a>, PubMed:<a href="http://www.uniprot.org/citations/15317753" target="\_blank">15317753</a>, PubMed:<a href="http://www.uniprot.org/citations/18551513" target="\_blank">18551513</a>, PubMed:<a href="http://www.uniprot.org/citations/18611980" target="\_blank">18611980</a>, PubMed:<a href="http://www.uniprot.org/citations/22431096" target="\_blank">22431096</a>, PubMed:<a href="http://www.uniprot.org/citations/23666920" target="\_blank">23666920</a>, PubMed:<a href="http://www.uniprot.org/citations/31548606" target="\_blank">31548606</a>). Also involved in DNA repair: recruited by DNA repair proteins XRCC4 and IFFO1 to the DNA double-strand breaks (DSBs) to prevent chromosome translocation by immobilizing broken DNA ends (PubMed:<a href="http://www.uniprot.org/citations/31548606" target="\_blank">31548606</a>). Required for normal development of peripheral nervous system and skeletal muscle and for muscle satellite cell proliferation (PubMed:<a href="http://www.uniprot.org/citations/10080180" target="\_blank">10080180</a>, PubMed:<a href="http://www.uniprot.org/citations/10814726" target="\_blank">10814726</a>, PubMed:<a href="http://www.uniprot.org/citations/11799477" target="\_blank">11799477</a>, PubMed:<a href="http://www.uniprot.org/citations/18551513" target="\_blank">18551513</a>, PubMed:<a href="http://www.uniprot.org/citations/22431096" target="\_blank">22431096</a>). Required for osteoblastogenesis and bone formation (PubMed:<a href="http://www.uniprot.org/citations/12075506" target="\_blank">12075506</a>, PubMed:<a href="http://www.uniprot.org/citations/15317753" target="\_blank">15317753</a>, PubMed:<a href="http://www.uniprot.org/citations/18611980" target="\_blank">18611980</a>). Also prevents fat infiltration of muscle and bone marrow, helping to maintain the volume and strength of skeletal muscle and bone (PubMed:<a href="http://www.uniprot.org/citations/10587585" target="\_blank">10587585</a>). Required for cardiac homeostasis (PubMed:<a href="http://www.uniprot.org/citations/10580070" target="\_blank">10580070</a>, PubMed:<a href="http://www.uniprot.org/citations/12927431" target="\_blank">12927431</a>, PubMed:<a href="http://www.uniprot.org/citations/18611980" target="\_blank">18611980</a>, PubMed:<a href="http://www.uniprot.org/citations/23666920" target="\_blank">23666920</a>).

### Cellular Location

Nucleus lamina. Nucleus envelope. Nucleus, nucleoplasm. Nucleus matrix. Note=Farnesylation of prelamin-A/C facilitates nuclear envelope targeting and subsequent cleavage by ZMPSTE24/FACE1 to remove the farnesyl group produces mature lamin-A/C, which can then be inserted into the nuclear lamina (PubMed:15317753) EMD is required for proper localization of non-farnesylated prelamin- A/C (PubMed:19323649). Also localizes to the micronuclear envelope in response to response to genome instability (PubMed:37788673)

### Tissue Location

In the arteries, prelamin-A/C accumulation is not observed in young healthy vessels but is prevalent in medial vascular smooth muscle cells (VSMCs) from aged individuals and in atherosclerotic lesions, where it often colocalizes with senescent and degenerate VSMCs. Prelamin-A/C expression increases with age and disease. In normal aging, the accumulation of prelamin-A/C is caused in part by the down-regulation of ZMPSTE24/FACE1 in response to oxidative stress.

### LMNA 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](#)

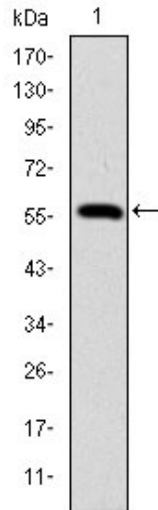
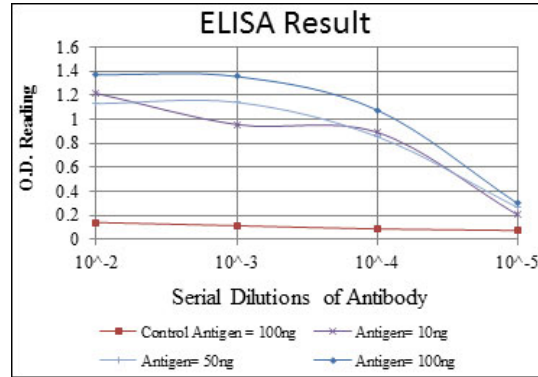


Figure 1: Western blot analysis using LMNA mAb against human LMNA (AA: 212-477) recombinant protein. (Expected MW is 56.3 kDa)

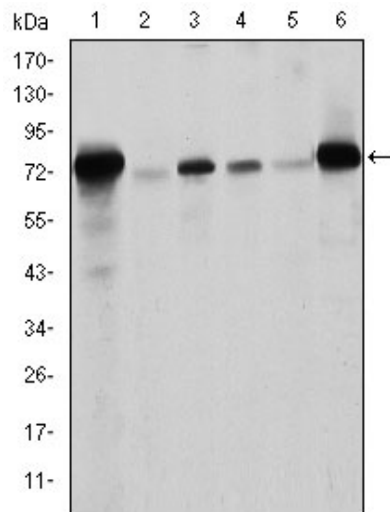


Figure 2: Western blot analysis using LMNA mouse mAb against Raw264.7 (1), PC-12 (2), THP-1 (3), A431 (4), MCF-7 (5) and Jurkat (6) cell lysate.

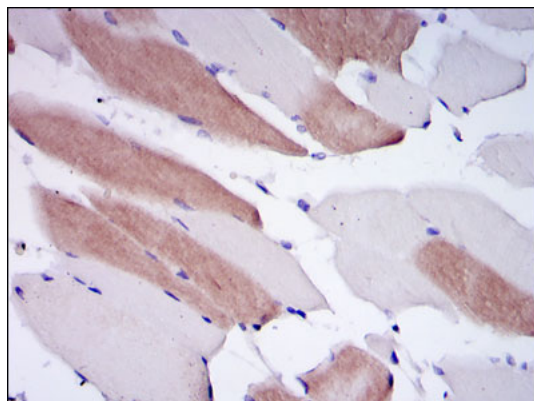


Figure 3: Immunohistochemical analysis of paraffin-embedded human striated muscle tissues using LMNA mouse mAb with DAB staining.

#### LMNA Antibody - References

1. Muscle Nerve. 2010 Jan;41(1):85-91.
2. Endocrine. 2009 Dec;36(3):518-23.