Lamin A/C Monoclonal Antibody (mab636)

**Catalog Number** MA3-1000

**Product data sheet**

### Details
- **Size**: 200 µL
- **Host/Isotope**: Mouse / IgG2b
- **Class**: Monoclonal
- **Type**: Antibody
- **Clone**: mab636
- **Immunogen**: Porcine lamin preparation.
- **Conjugate**: Unconjugated
- **Form**: Liquid
- **Concentration**: Conc. Not Determined
- **Storage buffer**: tissue culture supernatant
- **Contains**: 0.05% sodium azide
- **Storage Conditions**: -20° C, Avoid Freeze/Thaw Cycles

### Species Reactivity
- **Species Reactivity**: Bovine, Human, Pig
- **Published species**: Pig, Human, Not Applicable

### Tested Applications
- **Dilution ***:
  - Immunohistochemistry (Frozen) (IHC (F)): 1:100
  - Western Blot (WB): 1:100-1:2,000
  - Immunocytochemistry (ICC/IF): 1:100

### Published Applications
- **Immunocytochemistry (ICC/IF)**: See 6 publications below
- **Western Blot (WB)**: See 6 publications below

* Suggested working dilutions are given as a guide only. It is recommended that the user titrate the product for use in their own experiment using appropriate negative and positive controls.

### Background/Target Information

Lamins are a class of intermediate filament proteins that form a matrix on the inner surface of the nuclear envelope. These proteins are found in many different cell types in three different forms (A, B, and C). Lamins A and C are alternatively spliced versions of the LMNA gene. The LMNA gene has been linked to many disorders of the muscular system, nervous system, and the fat distributions systems including: Emery-Dreifuss muscular dystrophy, Dunnigan-type familial partial lipodystrophy (FPLD), limb-girdle muscular dystrophy (LGMD1B), dilated cardiomyopathy (CMD1A), axonal neuropathy (Charcot-Marie-Tooth disease; CMT2B1), and mandibuloacral dysplasia (MAD).

**For Research Use Only. Not for use in diagnostic procedures. Not for resale without express authorization.**
Lamin A/C Antibody (MA3-1000)

Antibody specificity was demonstrated by CRISPR-Cas9 mediated knockout of target protein. A loss of signal was observed for target protein in HeLa Cas9 cell line transduced with Lamin A Lentiviral sgRNA compared to control cell line using Anti-Lamin A/C Monoclonal Antibody (mab636) (Product # MA3-1000). [KO]

Lamin A/C Antibody (MA3-1000) in ICC/IF

Immunofluorescent analysis of Lamin A/C (green) in untreated U2-OS cells (A) or HeLa cells (B). Formalin fixed cells were permeabilized with 0.1% Triton X-100 in TBS for 10 minutes at room temperature. Cells were then blocked with 0.3% BSA for 15 minutes at room temperature. Cells were then probed with a mouse monoclonal antibody recognizing Lamin A/C (Product # MA3-1000), at a dilution of 1:100 for at least 1 hour at room temperature. Cells were then washed with PBS and incubated with DyLight 488 goat-anti-mouse secondary antibody (Product # 35503) at a dilution of 1:400 for 30 minutes at room temperature. Nuclei (blue) were stained with Hoechst 33342 dye (Product # 62249). Images were taken on a Thermo Scientific ArrayScan at 20X magnification.

Lamin A/C Antibody (MA3-1000) in ICC/IF

Immunofluorescent analysis of Lamin A/C (red) in MDCK cells. The cells were permeabilized with 0.1% Triton X-100 in PBS for 15 minutes, and blocked with 3% BSA in PBS (Product # 37525) for 15 minutes at room temperature. Cells were stained with a Lamin A/C mouse monoclonal antibody (Product # MA3-1000), at a dilution 1:100 in blocking buffer for at least 1 hour at room temperature, and then incubated with a Rabbit anti-Mouse IgG (H+L) Superclonal™ Secondary Antibody, Alexa Fluor® 594 conjugate (Product # A27027) at a dilution of 1:1000 for 30 minutes at room temperature (red). Nuclei (blue) were stained with Hoechst 33342 dye (Product # 62249). Images were taken on a Thermo Scientific ToxInsight Instrument at 20X magnification.

Lamin A/C Antibody (MA3-1000) in ICC/IF

Immunofluorescent analysis of Lamin A/C using Lamin A/C Monoclonal Antibody (mab636) (Product # MA3-1000) shows staining in U251 Cells. Lamin A/C (green), F-Actin staining with Phalloidin (red) and nuclei with DAPI (blue) is shown. Cells were grown on chamber slides and fixed with formaldehyde prior to staining. Cells were probed without (control) or with an antibody recognizing Lamin A/C (Product # MA3-1000) at a dilution of 1:200 over night at 4 °C, washed with PBS and incubated with a DyLight-488 conjugated secondary antibody (Product # 35552 for GAR, Product # 35503 for GAM). Images were taken at 60X magnification.
Lamin A/C Antibody (MA3-1000) in ICC/IF

Immunofluorescent analysis of Lamin A/C using Lamin A/C Monoclonal Antibody (mab636) (Product # MA3-1000) shows staining in Hela Cells. Lamin A/C (green), F-Actin staining with Phalloidin (red) and nuclei with DAPI (blue) is shown. Cells were grown on chamber slides and fixed with formaldehyde prior to staining. Cells were probed without (control) or with an antibody recognizing Lamin A/C (Product # MA3-1000) at a dilution of 1:20 over night at 4 °C, washed with PBS and incubated with a DyLight-488 conjugated secondary antibody (Product # 35552 for GAR, Product # 35503 for GAM). Images were taken at 60X magnification.

Lamin A/C Antibody (MA3-1000) in ICC/IF

Immunofluorescent analysis of Lamin A/C (green) in Human fibroblast cells. Methanol fixed cells were permeabilized with 0.1% Triton X-100 in TBS for 10 minutes at room temperature. Cells were then blocked with 5% normal goat serum (Product # 31873) for 15 minutes at room temperature. Cells were then probed with a mouse monoclonal antibody recognizing Lamin A/C (Product # MA3-1000), at a dilution of 1:200 for at least 1 hour at room temperature. Cells were then washed with PBS and incubated with DyLight 488 goat-anti-mouse secondary antibody at a dilution of 1:400 for 30 minutes at room temperature.

Lamin A/C Antibody (MA3-1000) in ICC/IF

Immunofluorescent analysis of Lamin A/C using anti-Lamin A/C monoclonal antibody (Product # MA3-1000) shows staining in HMVEC Cells.

Lamin A/C Antibody (MA3-1000) in ICC/IF

Immunofluorescent analysis of Lamin A/C using anti-Lamin A/C monoclonal antibody (Product # MA3-1000) shows staining in A549 Cells.
Lamin A/C Antibody (MA3-1000) in ICC/IF
Immunofluorescent analysis of Lamin A/C (red) in HeLa cells at high magnification.

Lamin A/C Antibody (MA3-1000) in WB
CRISPR-Cas9 mediated genome editing of Lamin A (as confirmed by next generation sequencing) was achieved by using LentiArray™ Lentiviral sgRNA (Product # A32042, AssayID CRISPR817702_LV) and LentiArray Cas9 Lentivirus (Product # A32064). Fig (a) Western blot analysis of Lamin A was performed by loading 30 µg of HeLa Cas9 (Lane 1) and HeLa Cas9 cells transduced with Lamin A Lentiviral sgRNA (Lane 2) modified whole cell extracts. The samples were electrophoresed using NuPAGE™ Novex™ 4-12% Bis-Tris Protein Gel (Product # NP0322BOX). Resolved proteins were then transferred onto a nitrocellulose membrane (Product # IB23001) by iBlot® 2 Dry Blotting System (Product # IB21001). The blot was probed with Anti-Lamin A/C Monoclonal Antibody (mab636) (Product # MA3-1000) using a 1:2000 dilution and Goat anti-Mouse IgG (H+L) Superclonal™ Recombinant Secondary Antibody, HRP (Product # A28177 1:20000 dilution). Chemiluminescent detection was performed using SuperSignal™ West Dura Extended Duration Substrate (Product # 34076). A loss of signal in sgRNA transduced cells using the LentiArray™ CRISPR product line confirms that antibody is specific to Lamin A (Fig (b)).

Lamin A/C Antibody (MA3-1000) in WB
Western blot analysis of Lamin A/C was performed by loading various amounts of Human fibroblast whole cell lysate onto a 10% SDS-PAGE gel. Proteins were transferred to a nitrocellulose membrane and blocked with PBS-0.002% Tween-20 containing 3% non-fat dry milk for at least 1 hour. Membranes were probed with a mouse monoclonal antibody recognizing Lamin A/C (Product # MA3-1000) at a dilution of 1:2000 overnight at 4°C on a rocking platform. Membranes were then washed in PBS-0.002% Tween-20 and probed with a goat anti-mouse-HRP secondary antibody (Product # 32430) at a dilution of 1:20,000 for at least one hour. Membranes were washed and chemiluminescent detection was performed using Super Signal West Pico (Product # 34087).

Lamin A/C Antibody (MA3-1000) in WB
Western blot analysis of Lamin A/C was performed by loading 10 µg nuclear extract from fractionated mouse tissue lysate onto a 4-20% Tris-HCl polyacrylamide gel. Proteins were transferred to a PVDF membrane and blocked with 5% BSA /TBS-T for at least 1 hour. Membranes were then probed with a mouse monoclonal antibody recognizing phospho-Lamin A /C (Product # MA3-1000) at a dilution of 1:500 overnight at 4°C on a rocking platform. Membranes were then washed in TBS-0.1% Tween 20 and probed with a goat anti-mouse-HRP secondary antibody (Product # 31430) at a dilution of 1: 15000 for at least one hour. Membranes were washed and chemiluminescent detection was performed using Super Signal West Dura (Product # 34075).
### 6 Immunocytochemistry References

<table>
<thead>
<tr>
<th>Species / Dilution</th>
<th>Summary</th>
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<tbody>
<tr>
<td>Human / Not Cited</td>
<td>MA3-1000 was used in Immunocytochemistry to study the role of the HIV regulatory protein Vpr in G2 arrest</td>
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<tr>
<td>Human / 1:200</td>
<td>&quot;Mechanical stability of the cell nucleus - roles played by the cytoskeleton in nuclear deformation and strain recovery.&quot;</td>
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<tr>
<td></td>
<td>PubMed Article URL: <a href="http://dx.doi.org/10.1242/jcs.209627">http://dx.doi.org/10.1242/jcs.209627</a></td>
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<tr>
<td>Human / 1:100</td>
<td>MA3-1000 was used in Immunocytochemistry to study the mechanism of human myogenesis and disease pathogenesis and for the development of muscle stem cell therapeutics.</td>
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<td>eLife (Jan 2022; 11: ) &quot;IMyoblasts for ex vivo and in vivo investigations of human myogenesis and disease modeling.&quot;</td>
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<td></td>
<td>PubMed Article URL: <a href="http://dx.doi.org/10.7554/eLife.70341">http://dx.doi.org/10.7554/eLife.70341</a></td>
</tr>
<tr>
<td>Human / 1:100</td>
<td>MA3-1000 was used in Immunocytochemistry to report that the inhibition of the JAK-STAT pathway with baricitinib, a Food and Drug Administration-approved JAK1/2 inhibitor, restored cellular homeostasis, delayed senescence and decreased proinflammatory markers in HGPS cells.</td>
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<td>Small (Weinheim an der Bergstrasse, Germany) (Mar 2020; 16: ) &quot;Surface Roughness Gradients Reveal Topography-Specific Mechanosensitive Responses in Human Mesenchymal Stem Cells.&quot;</td>
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<tr>
<td></td>
<td>Author(s): Hou Y, Xie W, Yu L, Camacho LC, Nie C, Zhang M, Haag R, Wei Q</td>
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<td></td>
<td>PubMed Article URL: <a href="http://dx.doi.org/10.1002/sml.201905422">http://dx.doi.org/10.1002/sml.201905422</a></td>
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<tr>
<td>Human / Not Cited</td>
<td>MA3-1000 was used in Immunocytochemistry to study the mechanotransduction and fate determination of human mesenchymal stem cells (MSCs) on surface roughness gradients.</td>
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<td>Cells (Oct 2019; 8: ) &quot;Inhibition of JAK-STAT Signaling with Baricitinib Reduces Inflammation and Improves Cellular Homeostasis in Progeria Cells.&quot;</td>
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<tr>
<td></td>
<td>Author(s): Liu C, Arnold R, Henriques G, Djabali K</td>
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<tr>
<td></td>
<td>PubMed Article URL: <a href="http://dx.doi.org/10.3390/cells8101276">http://dx.doi.org/10.3390/cells8101276</a></td>
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### 6 Western Blot References

<table>
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<th>Species / Dilution</th>
<th>Summary</th>
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<tr>
<td>Human / 1:500</td>
<td>MA3-1000 was used in Western Blotting to examine the level and localisation of the NEMO protein in preeclamptic and nonpreeclamptic placentas.</td>
</tr>
<tr>
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<td>Disease markers (May 2019; 2019: ) &quot;Placental Expression of NEMO Protein in Normal Pregnancy and Preeclampsia.&quot;</td>
</tr>
<tr>
<td></td>
<td>PubMed Article URL: <a href="http://dx.doi.org/10.1155/2019/8418379">http://dx.doi.org/10.1155/2019/8418379</a></td>
</tr>
</tbody>
</table>
MA3-1000 was used in Western Blotting to conclude that CircATXN7 accelerated the malignancy of NSCLC cells through adsorbing miR-7-5p and upregulating PFN2, offering evidence to support circATXN7 as a target for NSCLC treatment.

Human / 1:500

Thoracic cancer (Jun 2022; 13: 1597)
"Downregulation of circATXN7 represses non-small cell lung cancer growth by releasing miR-7-5p."
Author(s): Li D, Fu Z, Dong C, Song Y
PubMed Article URL: http://dx.doi.org/10.1111/1759-7714.14426

MA3-1000 was used in Western Blotting sorting to provide the data in an easy-to-use web platform to facilitate re-use, as the data can be relevant for basic research as well as for clinical exploitation of T cells as therapeutic targets.

Human / Not Cited

Frontiers in immunology (Nov 2020; 10: )
"TcellSubC: An Atlas of the Subcellular Proteome of Human T Cells."
Author(s): Joshi RN, Stadler C, Lehmann R, Lehtilö J, Tegnér J, Schmidt A, Vesterlund M
PubMed Article URL: http://dx.doi.org/10.3389/fimmu.2019.02078

MA3-1000 was used in western blot to determine poor prognosis markers in glioblastoma involving altered retinoic acid signaling and an association with cytoplasmic CRABP2

Not Applicable / 1:1000

Glia (Jun 2016; 64: 963)
"Association between cytoplasmic CRABP2, altered retinoic acid signaling, and poor prognosis in glioblastoma."
Author(s): Liu RZ, Li S, Garcia E, Giubrechet DD, Poon HY, Easaw JC, Godbout R
PubMed Article URL: http://dx.doi.org/10.1002/glia.22976

MA3-1000 was used in western blot to study the localization and functions of myosin Va and Vb

Human / Not Cited

Cell motility and the cytoskeleton (Dec 2009; 66: 1057)
"Myosin Vb localises to nucleoli and associates with the RNA polymerase I transcription complex."
Author(s): Lindsay AJ, McCaffrey MW
PubMed Article URL: http://dx.doi.org/10.1002/cm.20408

MA3-1000 was used in western blot to investigate the effect of RANBP 16 and 17 on bHLH transcription factor E12 function

Human / 1:200

Journal of cellular biochemistry (Sep 2010; 111: 195)
"Identification of RANBP16 and RANBP17 as novel interaction partners for the bHLH transcription factor E12."
Author(s): Lee JH, Zhou S, Smas CM
PubMed Article URL: http://dx.doi.org/10.1002/jcb.22689