abcam

ab216074

Anti-Lamin A + Lamin C antibody [EPR4100] - BSA and Azide free

Recombinant | RabMAb | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EPR4100
Purification technique	Affinity purification Protein A
Specificity	The antibody recognizes full length Lamin A/C and the cleaved large unit.We have data to indicate that this antibody gives non-specific staining in IHC with mouse tissues. Based on this we believe the antibody is not suitable for use with mouse samples, as there will be non-specific staining.
Concentration	1.041 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	ab199376 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

IHC-P

Tested

Species	Human
Dilution info	-
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Target data

See full target information LMNA

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:10080180, PubMed:10580070, PubMed:10587585, PubMed:10814726, PubMed:11799477, PubMed:12075506, PubMed:12927431, PubMed:15317753, PubMed:18551513, PubMed:18611980, PubMed:2188730, PubMed:22431096, PubMed:2344612, PubMed:23666920, PubMed:24741066, PubMed:31434876, PubMed:31548606, PubMed:37788673, PubMed:37832547). 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:10080180, PubMed:10580070, PubMed:10587585, PubMed:10814726, PubMed:11799477, PubMed:12075506, PubMed:12927431, PubMed:15317753, PubMed:18551513, PubMed:18611980, PubMed:22431096, PubMed:23666920, PubMed:24741066, PubMed:31548606, PubMed:37788673, PubMed:37832547). Lamin A and C also regulate matrix stiffness by conferring nuclear mechanical properties (PubMed:23990565, PubMed:25127216). 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:2188730, PubMed:2344612). Lamin A and C are present in equal amounts in the lamina of mammals (PubMed:10080180, PubMed:10580070, PubMed:10587585, PubMed:10814726, PubMed:11799477, PubMed:12075506, PubMed:12927431, PubMed:15317753, PubMed:18551513, PubMed:18611980, PubMed:22431096, PubMed:23666920, PubMed:31548606). 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:31548606). Required for normal development of peripheral nervous system and skeletal muscle and for muscle satellite cell proliferation (PubMed:10080180, PubMed:10814726, PubMed:11799477, PubMed:18551513, PubMed:22431096). Required for osteoblastogenesis and bone formation (PubMed:12075506, PubMed:15317753, PubMed:18611980). Also prevents fat infiltration of muscle and bone marrow, helping to maintain the volume and strength of skeletal muscle and bone (PubMed:10587585). Required for cardiac homeostasis (PubMed:10580070, PubMed:12927431, PubMed:18611980, PubMed:23666920). Prelamin-A/C. Prelamin-A/C can accelerate smooth muscle cell senescence (PubMed:20458013). It acts to disrupt mitosis and induce DNA damage in vascular smooth muscle cells (VSMCs), leading to mitotic failure, genomic instability, and premature senescence (PubMed:20458013).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C

Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab216074 is the carrier-free version of ab108595.

Species reactivity
Mouse, Rat: We have preliminary internal testing data to indicate this antibody may not react with these species. Please contact us for more information.

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Conjugation ready
Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility
This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	Lamin A and Lamin C also known as lamin A/C are proteins encoded by the LMNA gene. These proteins are key components of the nuclear envelope where they provide structural support and maintain the shape of the nucleus. The lamin A/C molecule has a molecular weight of approximately 60-70 kDa. Expression of lamin A and lamin C occurs predominantly in differentiated cells where these proteins integrate into the nuclear lamina alongside other lamin molecules like lamin B. Lamin A alone sometimes referred to by designations like 4C11 plays a significant role in mechanical support at a molecular level.
Biological function summary	Lamin A/C proteins play a role in maintaining nuclear stability chromosome organization and gene regulation. They are part of a complex network within the nuclear lamina that includes interactions with proteins and DNA. Lamin A with a molecular weight distinct from other lamins participates in assembling this supportive matrix and contributes to DNA maintenance and repair processes. Their interaction with chromatin and gene expression regulation emphasizes their influence on important cellular functions.
Pathways	Lamin A/C proteins engage in the mechanosensory signaling and DNA damage response pathways. They interact with pathways involving the nuclear envelope structure and have connections to proteins like emerin and nuclear actin. Lamin A's role in these pathways supports its involvement in responding to mechanical stress and preserving genomic integrity highlighting its integration with these cellular processes.
Associated diseases and disorders	Mutations in lamin A/C are linked to disorders such as Hutchinson-Gilford Progeria Syndrome and Emery-Dreifuss Muscular Dystrophy. These conditions highlight the importance of lamin A/C in cellular stability and nuclear integrity. Proteins such as emerin often relate to lamin A/C in these diseases as disruptions to their interactions can lead to compromised nuclear function and disease phenotypes.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

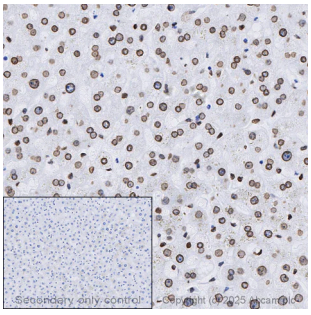
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

15 product images

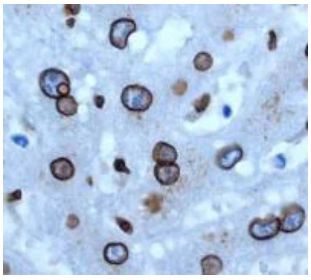


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Lamin A + Lamin C antibody [EPR4100] - BSA and Azide free (ab216074)

Lamin A + Lamin C Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Human liver using rabbit Anti-Lamin A + Lamin C antibody

This data was developed using ab108595 the same antibody clone in a different buffer formulation.
Immunohistochemical analysis of formalin fixed paraffin embedded human liver labelling Lamin A + Lamin C with ab108595 at a concentration of 0.01µg/ml. The immunostaining was performed on a Ventana DISCOVERY ULTRA (Roche Tissue Diagnostics) instrument with a OptiView DAB IHC Detection Kit. Heat mediated antigen retrieval was performed with DISCOVERY cell conditioning solution (CC1) 100°C, pH8.5 for 32 mins. ab108595 anti-Lamin A + Lamin C antibody [EPR4100] was incubated for 16 mins at 37°C. Sections were counterstained with Hematoxylin II. Image inset shows absence of staining in secondary antibody only control.

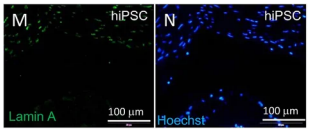
Customers are encouraged to optimise antigen retrieval conditions, antibody concentration, incubation times and temperature for best results in their own IHC assay workflow (automated and manual).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Lamin A + Lamin C antibody [EPR4100] - BSA and Azide free (ab216074)

Lamin A + Lamin C Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Lamin A + Lamin C antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human brain tissue labeling Lamin A + C with ab108595 at 1/250 dilution.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab108595).



Kanemura et al PLoS One. 2014 Jan 14;9(1):e85336. doi: 10.1371/journal.pone.008

Immunocytochemistry/ Immunofluorescence - Anti-Lamin A + Lamin C antibody [EPR4100] - BSA and Azide free (ab216074)

Lamin A + Lamin C Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Lamin A + Lamin C antibody

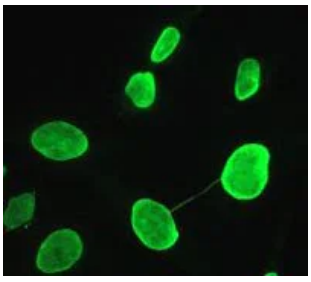
Histological analyses of hiPSCs (Human induced pluripotent stem cell) transplanted into the subretinal space of nude rats.

5336. eCollection 2014. Fig 6. Reproduced under the Creative Commons license http://creativecommons.org/licenses/by/4.0/

Eye balls were excised from a nude rat 7 weeks after subretinal transplantation with 1×10^4 hiPSCs. Transplanted tissues were fixed with 4% paraformaldehyde. Paraffin embedded tissue sections were stained with haematoxylin/eosin. Then, the paraffin sections were deparaffinized with xylene and sequential 100%, 95%, 80%, 70% ethanol treatments for 5 min each. The sections were treated with 10 mM citric acid (pH 6) at 95°C for 50 min followed by permeation with 0.4% Triton-X in PBS at room temperature for 30 min.

The deparaffinized sections were stained with ab108595 (Panel M), Hoechst 33258 (Panel N).

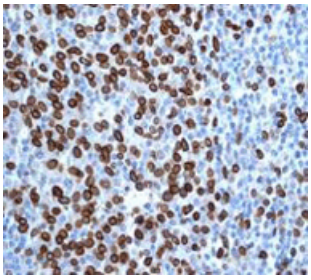
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab108595).



Immunocytochemistry/ Immunofluorescence - Anti-Lamin A + Lamin C antibody [EPR4100] - BSA and Azide free (ab216074)

Lamin A + Lamin C Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Lamin A + Lamin C antibody

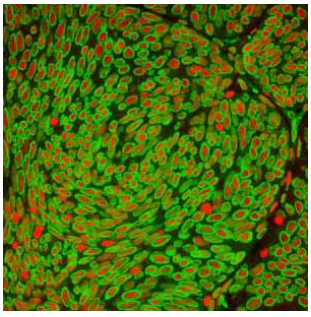
Immunocytochemsitry/Immunofluorescence analysis of HeLa (Human epithelial cell line from cervix adenocarcinoma) cells labeling Lamin A + C with unpurified ab108595 at 1/250 dilution.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab108595).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Lamin A + Lamin C antibody [EPR4100] - BSA and Azide free (ab216074)

Lamin A + Lamin C Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Lamin A + Lamin C antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human liver tissue labeling Lamin A + C with ab108595 at 1/250 dilution.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab108595).



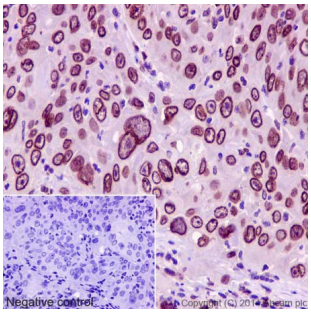
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Lamin A + Lamin C antibody [EPR4100] - BSA and Azide free (ab216074)

Lamin A + Lamin C Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Lamin A + Lamin C antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human urothelial carcinoma tissue labeling Lamin A + C with ab108595.
Green - Lamin A + C.

Red - PI.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab108595).

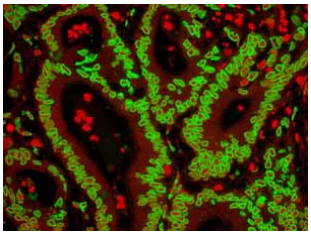


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Lamin A + Lamin C antibody [EPR4100] - BSA and Azide free (ab216074)

Lamin A + Lamin C Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Lamin A + Lamin C antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human cervix carcinoma tissue labeling Lamin A + C with purified ab108595 at 1/250. Heat mediated antigen retrieval was performed using Tris/EDTA buffer pH 9. A prediluted HRP-polymer conjugated anti-rabbit IgG was used as the secondary antibody. Counterstained with hematoxylin.
Negative control using PBS instead of primary antibody (inset).

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab108595).



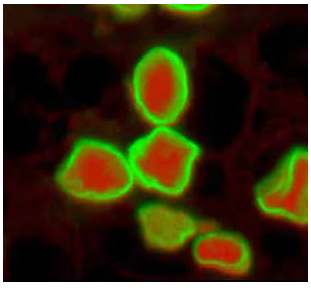
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Lamin A + Lamin C antibody [EPR4100] - BSA and Azide free (ab216074)

Lamin A + Lamin C Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Lamin A + Lamin C antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human colonic carcinoma tissue labeling Lamin A + C with ab108595.
Green - Lamin A + C.

Red - PI.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab108595).



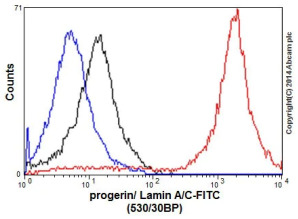
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Lamin A + Lamin C antibody [EPR4100] - BSA and Azide free (ab216074)

Lamin A + Lamin C Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Lamin A + Lamin C antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human breast carcinoma tissue labeling Lamin A + C with ab108595.
Green - Lamin A + C.

Red - PI.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab108595).

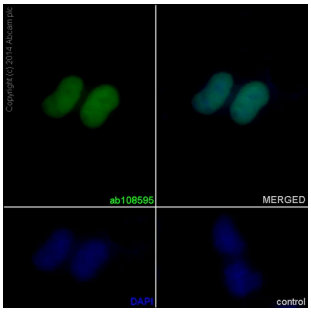


Flow Cytometry (Intracellular) - Anti-Lamin A + Lamin C antibody [EPR4100] - BSA and Azide free (ab216074)

Lamin A + Lamin C Flow Cytometry (Intracellular) staining using rabbit Anti-Lamin A + Lamin C antibody

Flow Cytometry analysis of HeLa (Human epithelial cell line from cervix adenocarcinoma) cells labeling Lamin A + C with purified ab108595 at 1/110 (red). Cells were fixed with 2% paraformaldehyde. A FITC-conjugated goat anti-rabbit IgG (1/150) was used as the secondary antibody.
Black - Isotype control, rabbit monoclonal IgG. Blue - Unlabeled control, cells without incubation with primary and secondary antibodies.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab108595).

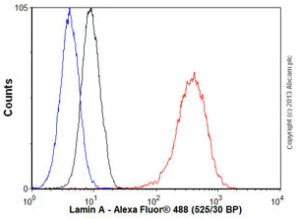


Immunocytochemistry/ Immunofluorescence - Anti-Lamin A + Lamin C antibody [EPR4100] - BSA and Azide free (ab216074)

Lamin A + Lamin C Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Lamin A + Lamin C antibody

Immunocytochemistry/Immunofluorescence analysis of HeLa (Human epithelial cell line from cervix adenocarcinoma) cells labeling Lamin A + C (green) with purified ab108595 at 1/500. Cells were fixed with 4% paraformaldehyde and permeabilized with 0.1% Triton X-100. ab150077, an Alexa Fluor® 488-conjugated goat anti-rabbit IgG (1/500) was used as the secondary antibody. DAPI (blue) was used as the nuclear counterstain.
Control: Primary antibody (1/500) and secondary antibody ab150120, an Alexa Fluor® 594-conjugated goat anti-mouse IgG (1/500).

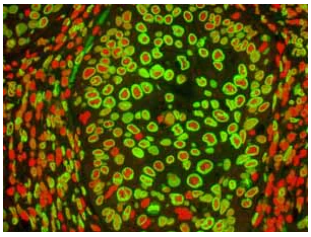
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab108595).



Flow Cytometry (Intracellular) - Anti-Lamin A + Lamin C antibody [EPR4100] - BSA and Azide free (ab216074)

Lamin A + Lamin C Flow Cytometry (Intracellular) staining using rabbit Anti-Lamin A + Lamin C antibody

Overlay histogram showing HeLa (Human epithelial cell line from cervix adenocarcinoma) cells stained with unpurified ab108595 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab108595, 1/1000 dilution) for 30 min at 22°C. The secondary antibody used was Alexa Fluor® 488 goat anti-rabbit IgG (H&L) (ab150077) at 1/2000 dilution for 30 min at 22°C. Isotype control antibody (black line) was rabbit IgG (monoclonal) (0.1µg/1x10^6 cells) used under the same conditions. Unlabeled sample (blue line) was also used as a control. Acquisition of >5,000 events were collected using a 20mW Argon ion laser (488nm) and 525/30 bandpass filter.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab108595).



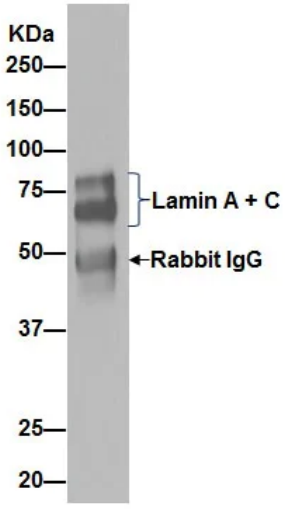
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Lamin A + Lamin C antibody [EPR4100] - BSA and Azide free (ab216074)

Lamin A + Lamin C Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Lamin A + Lamin C antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human cervical carcinoma tissue labeling Lamin A + C with ab108595.
Green - Lamin A + C.

Red - PI.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab108595).



Immunoprecipitation - Anti-Lamin A + Lamin C antibody [EPR4100] - BSA and Azide free (ab216074)

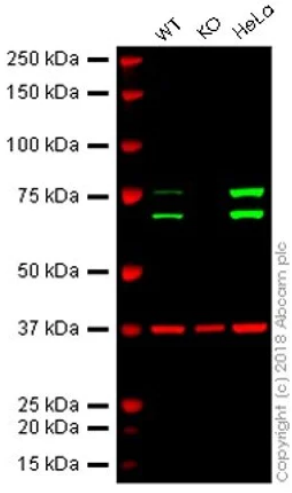
ab108595 (purified) at 1/30 immunoprecipitating Lamin A + C in HeLa (Human epithelial cell line from cervix adenocarcinoma) cell lysate. For western blotting, a peroxidase-conjugated goat anti-rabbit IgG (H+L) was used as the secondary antibody (1/1000).
Blocking/Dilution buffer and concentration: 5% NFDM/TBST.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab108595).

All lanes:
Immunoprecipitation - Anti-Lamin A + Lamin C antibody [EPR4100] - Nuclear Envelope Marker (ab108595)

Predicted band size: 74 kDa

Observed band size: 74 kDa



Western blot - Anti-Lamin A + Lamin C antibody [EPR4100] - BSA and Azide free (ab216074)

Lamin A + Lamin C Western blot staining using rabbit Anti-Lamin A + Lamin C antibody

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab108595).
ab108595 was shown to specifically react with Lamin A + C (LMNA) in wild type HAP1 cells. No band was observed when Lamin A + C (LMNA) knockout samples were used. Wild-type and Lamin A + C (LMNA) knockout samples were subjected to SDS-PAGE. The membrane was blocked for an hour using 5% milk before ab108595 and ab8245 (Mouse anti-GAPDH loading control) were incubated overnight at 4°C at a 1/10000 and 1/20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preadsorbed (ab216776) secondary antibodies at 1/20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-Lamin A + Lamin C antibody [EPR4100] - BSA and Azide free (ab216074) at 1/10000 dilution

Lane 1:
Wild-type HAP1 whole cell lysate at 20 µg

Lane 2:
Lamin A/C knockout HAP1 whole cell lysate at 20 µg

Lane 3:
HeLa whole cell lysate at 20 µg

Performed under reducing conditions.

Predicted band size: 74 kDa

Observed band size: 64 kDa, 76 kDa

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.