abcam

Product datasheet

Anti-Lamin A + Lamin C antibody [EPR4100] - Nuclear Envelope Marker ab108595

敲除验证 重组 RabMAb

★★★★★ 7 Abreviews 103 References 18 图像

概述

产品名称	Anti-Lamin A + Lamin C抗体[EPR4100] -核Envelope Marker
描述	兔单克隆抗体[EPR4100] to Lamin A + Lamin C -核Envelope Marker
宿主	Rabbit
特异性	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.
经测试应用	**适用于:** Flow Cyt (Intra), ICC/IF, WB, IP, IHC-P
种属反应性	**与反应:** Human
免疫原	Synthetic peptide. This information is proprietary to Abcam and/or its suppliers.
阳性对照	WB: HeLa, HepG2, HaCaT and SH-SY5Y cell lysates. IHC-P: Human brain, liver, cervix carcinoma, breast carcinoma, urothelial carcinoma and colonic carcinoma tissues. ICC/IF HeLa cells. Flow Cyt (intra): HeLa cells.
常规说明	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 production For more information **see here**. Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to **RabMAb® patents**. Mouse, Rat: We have preliminary internal testing data to indicate this antibody may not react with these species. Please contact us for more information.

性能

形式	Liquid
存放说明	Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -20°C.

	Stable for 12 months at -20°C.
存储溶液	pH: 7.20 Preservative: 0.01% Sodium azide Constituents: 40% Glycerol, 0.05% BSA, PBS
纯度	Protein A purified
克隆	单克隆
克隆编号	EPR4100
同种型	IgG

应用

The Abpromise guarantee Abpromise™承诺保证使用ab108595于以下的经测试应用

"应用说明"部分 下显示的仅为推荐的起始稀释度;实际最佳的稀释度/浓度应由使用者检定。

应用	Ab评论	说明
Flow Cyt (Intra)		1/100 - 1/150. **ab172730** - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.
ICC/IF		1/250 - 1/500.
WB	★★★★☆ (1)	1/10000 - 1/50000. Predicted molecular weight: 63,74 kDa.
IP		1/30.
IHC-P	★★★★★ (5)	1/250 - 1/500. Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol. See **IHC antigen retrieval protocols**.

靶标

功能	Lamins are components of the nuclear lamina, a fibrous layer on the nucleoplasmic side of the inner nuclear membrane, which is thought to provide a framework for the nuclear envelope and may also interact with chromatin. Lamin A and C are present in equal amounts in the lamina of mammals. Play an important role in nuclear assembly, chromatin organization, nuclear membrane and telomere dynamics. Prelamin-A/C can accelerate smooth muscle cell senescence. It acts to disrupt mitosis and induce DNA damage in vascular smooth muscle cells (VSMCs), leading to mitotic failure, genomic instability, and premature senescence.
组织特异性	In the arteries, prelamin-A/C accumulation is not observed in young healthy vessels but is prevalent in medial vascular smooth muscle celle (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.
疾病相关	Defects in LMNA are the cause of Emery-Dreifuss muscular dystrophy type 2 (EDMD2)

[MIM:181350]. A degenerative myopathy characterized by weakness and atrophy of muscle without involvement of the nervous system, early contractures of the elbows, Achilles tendons and spine, and cardiomyopathy associated with cardiac conduction defects.
Defects in LMNA are the cause of cardiomyopathy dilated type 1A (CMD1A) [MIM:115200]. Dilated cardiomyopathy is a disorder characterized by ventricular dilation and impaired systolic function, resulting in congestive heart failure and arrhythmia. Patients are at risk of premature death.
Defects in LMNA are the cause of familial partial lipodystrophy type 2 (FPLD2) [MIM:151660]; also known as familial partial lipodystrophy Dunnigan type. A disorder characterized by the loss of subcutaneous adipose tissue in the lower parts of the body (limbs, buttocks, trunk). It is accompanied by an accumulation of adipose tissue in the face and neck causing a double chin, fat neck, or cushingoid appearance. Adipose tissue may also accumulate in the axillae, back, labia majora, and intraabdominal region. Affected patients are insulin-resistant and may develop glucose intolerance and diabetes mellitus after age 20 years, hypertriglyceridemia, and low levels of high density lipoprotein cholesterol.
Defects in LMNA are the cause of limb-girdle muscular dystrophy type 1B (LGMD1B) [MIM:159001]. LGMD1B is an autosomal dominant degenerative myopathy with age-related atrioventricular cardiac conduction disturbances, dilated cardiomyopathy, and the absence of early contractures. LGMD1B is characterized by slowly progressive skeletal muscle weakness of the hip and shoulder girdles. Muscle biopsy shows mild dystrophic changes.
Defects in LMNA are the cause of Charcot-Marie-Tooth disease type 2B1 (CMT2B1) [MIM:605588]. CMT2B1 is a form of Charcot-Marie-Tooth disease, the most common inherited disorder of the peripheral nervous system. Charcot-Marie-Tooth disease is classified in two main groups on the basis of electrophysiologic properties and histopathology: primary peripheral demyelinating neuropathy or CMT1, and primary peripheral axonal neuropathy or CMT2. Neuropathies of the CMT2 group are characterized by signs of axonal regeneration in the absence of obvious myelin alterations, normal or slightly reduced nerve conduction velocities, and progressive distal muscle weakness and atrophy. CMT2B1 inheritance is autosomal recessive.
Defects in LMNA are the cause of Hutchinson-Gilford progeria syndrome (HGPS) [MIM:176670]. HGPS is a rare genetic disorder characterized by features reminiscent of marked premature aging. Note=HGPS is caused by the toxic accumulation of a mutant form of lamin-A/C. This mutant protein, called progerin, acts to deregulate mitosis and DNA damage signaling, leading to premature cell death and senescence. Progerin lacks the conserved ZMPSTE24/FACE1 cleavage site and therefore remains permanently farnesylated. Thus, although it can enter the nucleus and associate with the nuclear envelope, it cannot incorporate normally into the nuclear lamina.
Defects in LMNA are the cause of cardiomyopathy dilated with hypergonadotropic hypogonadism (CMDHH) [MIM:212112]. A disorder characterized by the association of genital anomalies, hypergonadotropic hypogonadism and dilated cardiomyopathy. Patients can present other variable clinical manifestations including mental retardation, skeletal anomalies, scleroderma-like skin, graying and thinning of hair, osteoporosis. Dilated cardiomyopathy is characterized by ventricular dilation and impaired systolic function, resulting in congestive heart failure and arrhythmia.
Defects in LMNA are the cause of mandibuloacral dysplasia with type A lipodystrophy (MADA) [MIM:248370]. A disorder characterized by mandibular and clavicular hypoplasia, acroosteolysis, delayed closure of the cranial suture, progeroide appearance, partial alopecia, soft tissue calcinosis, joint contractures, and partial lipodystrophy with loss of subcutaneous fat from the extremities. Adipose tissue in the face, neck and trunk is normal or increased.
Defects in LMNA are a cause of lethal tight skin contracture syndrome (LTSCS) [MIM:275210]; also known as restrictive dermopathy (RD). Lethal tight skin contracture syndrome is a rare disorder mainly characterized by intrauterine growth retardation, tight and rigid skin with erosions, prominent superficial vasculature and epidermal hyperkeratosis, facial features (small mouth,

small pinched nose and micrognathia), sparse/absent eyelashes and eyebrows, mineralization defects of the skull, thin dysplastic clavicles, pulmonary hypoplasia, multiple joint contractures and an early neonatal lethal course. Liveborn children usually die within the first week of life. The overall prevalence of consanguineous cases suggested an autosomal recessive inheritance. Defects in LMNA are the cause of heart-hand syndrome Slovenian type (HHS-Slovenian) [MIM:610140]. Heart-hand syndrome (HHS) is a clinically and genetically heterogeneous disorder characterized by the co-occurrence of a congenital cardiac disease and limb malformations. Defects in LMNA are the cause of muscular dystrophy congenital LMNA-related (CMD-LMNA) [MIM:613205]. It is a form of congenital muscular dystrophy. Patients present at birth, or within the first few months of life, with hypotonia, muscle weakness and often with joint contractures.

序列相似性

Belongs to the intermediate filament family.

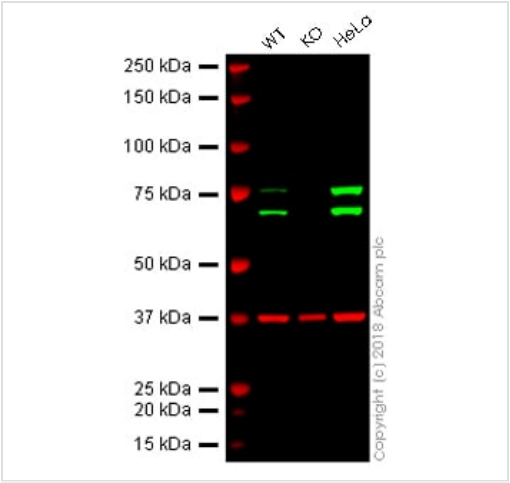
翻译后修饰

Increased phosphorylation of the lamins occurs before envelope disintegration and probably plays a role in regulating lamin associations.
Proteolytic cleavage of the C-terminal of 18 residues of prelamin-A/C results in the production of lamin-A/C. The prelamin-A/C maturation pathway includes farnesylation of CAAX motif, ZMPSTE24/FACE1 mediated cleavage of the last three amino acids, methylation of the C-terminal cysteine and endoproteolytic removal of the last 15 C-terminal amino acids. Proteolytic cleavage requires prior farnesylation and methylation, and absence of these blocks cleavage.
Sumoylation is necessary for the localization to the nuclear envelope.
Farnesylation of prelamin-A/C facilitates nuclear envelope targeting.

细胞定位

Nucleus. Nucleus envelope. Farnesylation of prelamin-A/C facilitates nuclear envelope targeting and subsequent cleaveage by ZMPSTE24/FACE1 to remove the farnesyl group produces mature lamin-A/C, which can then be inserted into the nuclear lamina. EMD is required for proper localization of non-farnesylated prelamin-A/C.

图片



Western blot - Anti-Lamin A + Lamin C antibody [EPR4100] - Nuclear Envelope Marker (ab108595)

All lanes : Anti-Lamin A + Lamin C antibody [EPR4100] - Nuclear Envelope Marker (ab108595) at 1/10000 dilution

Lane 1 : Wild-type HAP1 whole cell lysate
Lane 2 : Lamin A/C knockout HAP1 whole cell lysate
Lane 3 : HeLa whole cell lysate

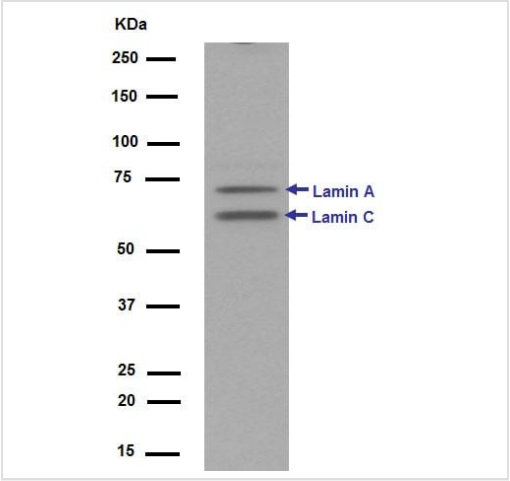
Lysates/proteins at 20 µg per lane.

Performed under reducing conditions.

Predicted band size: 63,74 kDa
Additional bands at: 64 kDa (possible cleavage fragment), 76 kDa (possible cleavage fragment)

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.



Western blot - Anti-Lamin A + Lamin C antibody [EPR4100] - Nuclear Envelope Marker (ab108595)

Anti-Lamin A + Lamin C antibody [EPR4100] - Nuclear Envelope Marker (ab108595) at 1/100000 dilution (purified) + HeLa (Human epithelial cell line from cervix adenocarcinoma) cell lysate at 10 µg

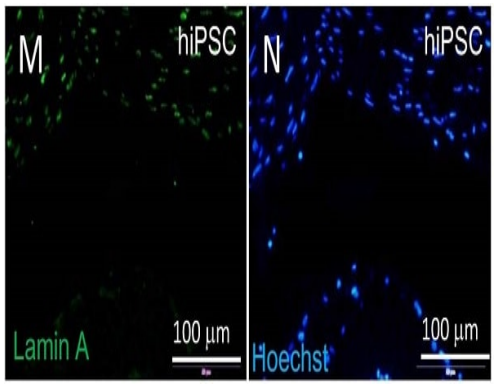
Secondary

Peroxidase-conjugated goat anti-rabbit IgG (H+L) at 1/1000 dilution

Predicted band size: 63,74 kDa

Observed band size: 63,74 kDa

Blocking/Dilution buffer and concentration: 5% NFDM/TBST.



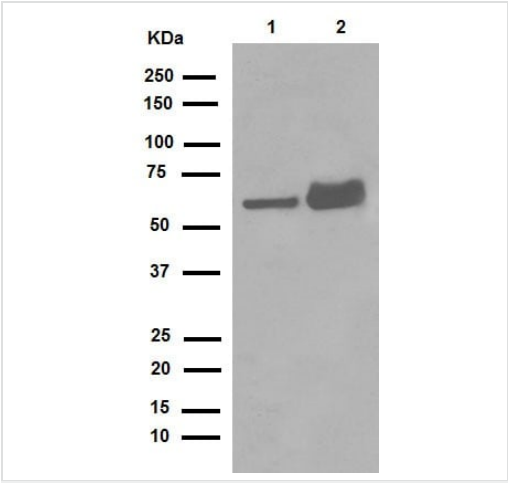
Immunocytochemistry/ Immunofluorescence - Anti-Lamin A + Lamin C antibody [EPR4100] - Nuclear Envelope Marker (ab108595)

Kanemura et al PLoS One. 2014 Jan 14;9(1):e85336. doi: 10.1371/journal.pone.0085336. eCollection 2014. Fig 6. Reproduced under the Creative Commons license http://creativecommons.org/licenses/by/4.0/

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

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).



Western blot - Anti-Lamin A + Lamin C antibody [EPR4100] - Nuclear Envelope Marker (ab108595)

All lanes : Anti-Lamin A + Lamin C antibody [EPR4100] - Nuclear Envelope Marker (ab108595) at 1/100000 dilution (purified)

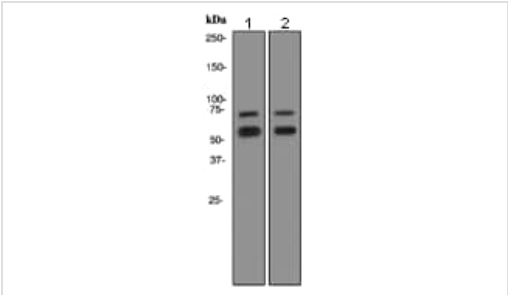
Lane 1 : HepG2 (Human liver hepatocellular carcinoma cell line) cell lysate
Lane 2 : HaCaT (Human keratinocyte cell line) cell lysate

Lysates/proteins at 20 µg per lane.

Secondary
All lanes : Peroxidase-conjugated goat anti-rabbit IgG (H+L) at 1/1000 dilution

Predicted band size: 63,74 kDa
Observed band size: 63,74 kDa

Blocking/Dilution buffer and concentration: 5% NFDM/TBST.



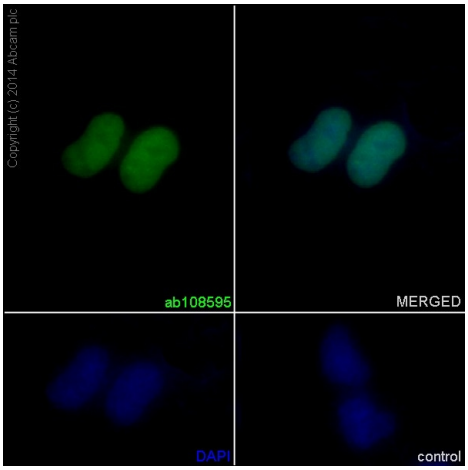
Western blot - Anti-Lamin A + Lamin C antibody [EPR4100] - Nuclear Envelope Marker (ab108595)

All lanes : Anti-Lamin A + Lamin C antibody [EPR4100] - Nuclear Envelope Marker (ab108595) at 1/10000 dilution (unpurified)

Lane 1 : HeLa (Human epithelial cell line from cervix adenocarcinoma) cell lysates
Lane 2 : SH-SY5Y (Human neuroblastoma cell line from bone marrow) cell lysates

Lysates/proteins at 10 µg per lane.

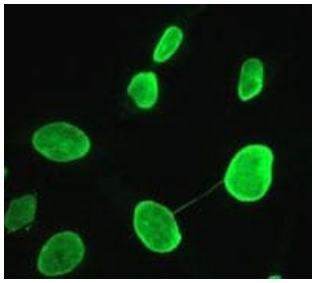
Predicted band size: 63,74 kDa



Immunocytochemistry/ Immunofluorescence - Anti-Lamin A + Lamin C antibody [EPR4100] - Nuclear Envelope Marker (ab108595)

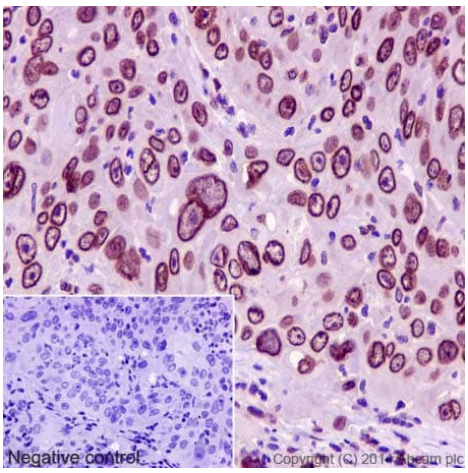
Immunocytochemistry/Immunofluorescence analysis of HeLa (Human epithelial cell line from cervix adenocarcinoma) cells labeling Lamin A + C (green) with purified ab108595 at 1/500. Cells were fixed with 4% paraformaldehyde and permeabilized with 0.1% Triton X-100. **ab150077**, an Alexa Fluor® 488-conjugated 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).



Immunocytochemistry/ Immunofluorescence - Anti-Lamin A + Lamin C antibody [EPR4100] - Nuclear Envelope Marker (ab108595)

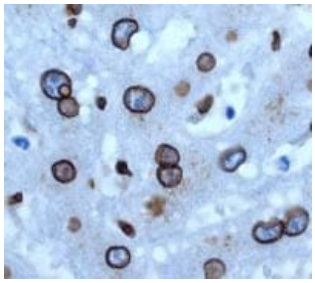
Immunocytochemsitry/Immunofluorescence analysis of HeLa (Human epithelial cell line from cervix adenocarcinoma) cells labeling Lamin A + C with unpurified ab108595 at 1/250 dilution.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Lamin A + Lamin C antibody [EPR4100] - Nuclear Envelope Marker (ab108595)

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.

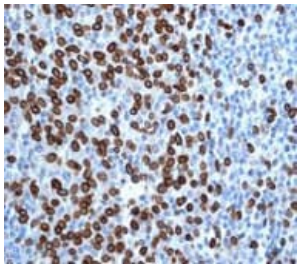
Negative control using PBS instead of primary antibody (inset).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Lamin A + Lamin C antibody [EPR4100] - Nuclear Envelope Marker (ab108595)

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human brain tissue labeling Lamin A + C with ab108595 at 1/250 dilution.

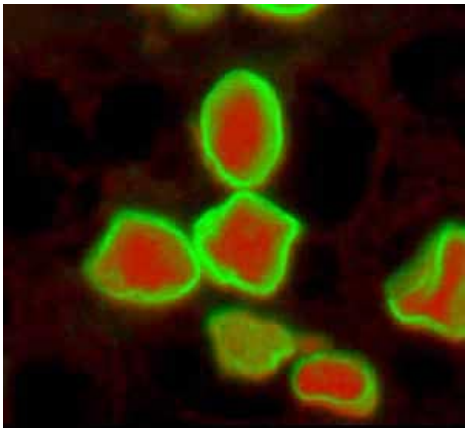
Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Lamin A + Lamin C antibody [EPR4100] - Nuclear Envelope Marker (ab108595)

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human liver tissue labeling Lamin A + C with ab108595 at 1/250 dilution.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



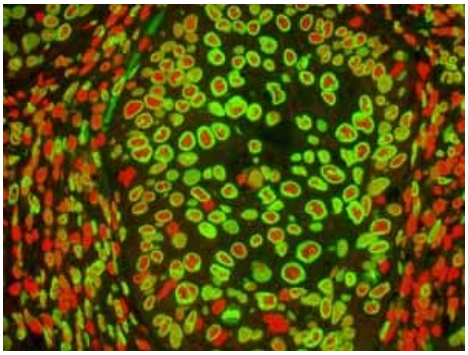
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Lamin A + Lamin C antibody [EPR4100] - Nuclear Envelope Marker (ab108595)

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.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



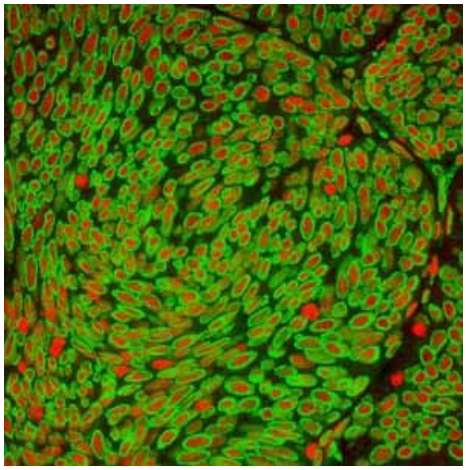
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Lamin A + Lamin C antibody [EPR4100] - Nuclear Envelope Marker (ab108595)

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.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



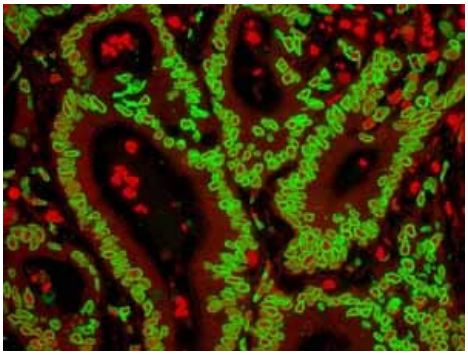
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Lamin A + Lamin C antibody [EPR4100] - Nuclear Envelope Marker (ab108595)

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.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



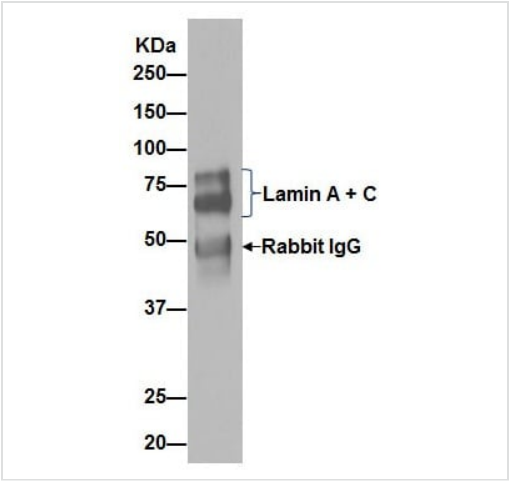
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Lamin A + Lamin C antibody [EPR4100] - Nuclear Envelope Marker (ab108595)

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.

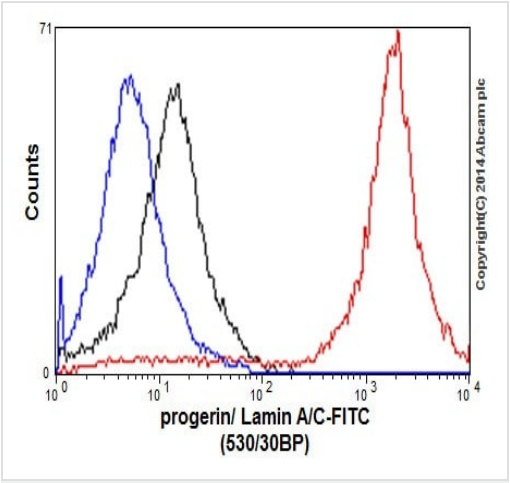
Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



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

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).

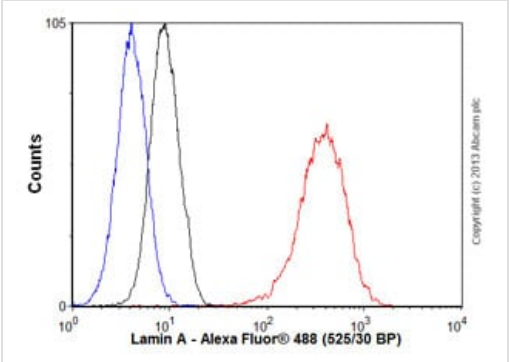
Blocking/Dilution buffer and concentration: 5% NFDM/TBST.



Flow Cytometry (Intracellular) - Anti-Lamin A + Lamin C antibody [EPR4100] - Nuclear Envelope Marker (ab108595)

Intracellular 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.

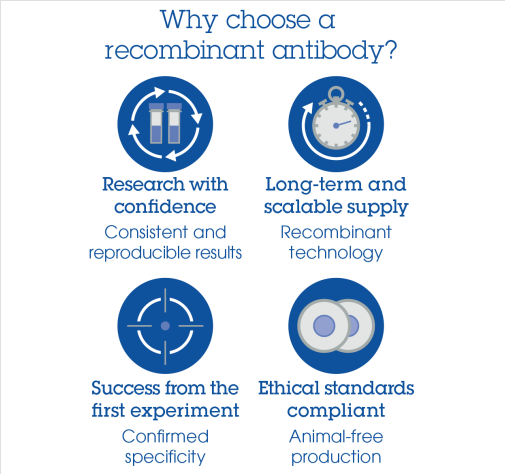
Black - Isotype control, rabbit monoclonal IgG. Blue - Unlabeled control, cells without incubation with primary and secondary antibodies.



Flow Cytometry (Intracellular) - Anti-Lamin A + Lamin C antibody [EPR4100] - Nuclear Envelope Marker (ab108595)

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 Fluorr® 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.



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

Please note: All products are "FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES"

Our Abpromise to you: Quality guaranteed and expert technical support

- Replacement or refund for products not performing as stated on the datasheet
- Valid for 12 months from date of delivery
- Response to your inquiry within 24 hours
- We provide support in Chinese, English, French, German, Japanese and Spanish
- Extensive multi-media technical resources to help you
- We investigate all quality concerns to ensure our products perform to the highest standards

If the product does not perform as described on this datasheet, we will offer a refund or replacement. For full details of the Abpromise, please visit **https://www.abcam.cn/abpromise** or contact our technical team.

Terms and conditions

- Guarantee only valid for products bought direct from Abcam or one of our authorized distributors