abcam

ab124916

Anti-SUN2 antibody [EPR6557]

Anti-SUN2 antibody [EPR6557] (ab124916) is a rabbit monoclonal antibody detecting SUN2 in **Western Blot, Flow Cytometry (Intra), IHC-P, ICC/IF**. Suitable for **Human, Mouse, Rat**.

- Biophysical QC for unrivalled batch-batch consistency
- Over 30 publications

Recombinant | RabMAb | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR6557
Purification technique	Affinity purification Protein A
Dissociation constant	5.43 x 10^{-11} M
Concentration	0.353 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Human
Dilution info	0.2-1 µg/mL
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

WB

Tested

Species	Mouse
Dilution info	1/1000 - 1/10000
Notes	-

Species	Rat
Dilution info	1/1000 - 1/10000
Notes	-

Species	Human
Dilution info	1/1000 - 1/10000
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/30
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

IHC-P

Tested

Species	Mouse
Dilution info	1/250 - 1/1000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Human
Dilution info	1/250 - 1/1000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Expected

Species	Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information SUN2

Function	As a component of the LINC (LInker of Nucleoskeleton and Cytoskeleton) complex, involved in the connection between the nuclear lamina and the cytoskeleton. The nucleocytoplasmic interactions established by the LINC complex play an important role in the transmission of mechanical forces across the nuclear envelope and in nuclear movement and positioning. Specifically, SYNE2 and SUN2 assemble in arrays of transmembrane actin-associated nuclear (TAN) lines which are bound to F-actin cables and couple the nucleus to retrograde actin flow during actin-dependent nuclear movement. Required for interkinetic nuclear migration (INM) and essential for nucleokinesis and centrosome-nucleus coupling during radial neuronal migration in the cerebral cortex and during glial migration. Required for nuclear migration in retinal photoreceptor progenitors implicating association with cytoplasmic dynein-dynactin and kinesin motor complexes, and probably B-type lamins; SUN1 and SUN2 seem to act redundantly. The SUN1/2:KASH5 LINC

complex couples telomeres to microtubules during meiosis; SUN1 and SUN2 seem to act at least partial redundantly. Anchors chromosome movement in the prophase of meiosis and is involved in selective gene expression of coding and non-coding RNAs needed for gametogenesis. Required for telomere attachment to nuclear envelope and gametogenesis. May also function on endocytic vesicles as a receptor for RAB5-GDP and participate in the activation of RAB5.

Storage

Shipped at conditions	Conditional Ambient
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

What is this antibody validated in?
Anti-SUN2 antibody [EPR6557] (ab124916) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Immunohistochemistry (IHC-P), Immunocytochemistry/immunofluorescence (ICC/IF) in Human, Mouse, Rat samples.

What is the molecular weight of SUN2?
Anti-SUN2 [EPR6557] (ab124916) specifically detects a band for SUN2 (UniProt: Q9UH99) at a molecular weight of 80kDa.

Trusted by the scientific community
Anti-SUN2 [EPR6557] (ab124916) was first used in a scientific publication in 2012 and has been cited over 30 times in peer-reviewed journals.

Reviewed by scientists
Anti-SUN2 [EPR6557] (ab124916) has over 5 independent reviews from customers.

Other related products
We have a range of other formats of antibody clone [EPR6557] also available for your convenience: ab124916, Alexa Fluor® 488 - ab198981, Alexa Fluor® 647 - ab198985, Carrier free - ab232365, PE - ab305856, APC - ab305857, HRP - ab305858, Alkaline Phosphatase - ab308879, Alexa Fluor® 594 - ab310605, Alexa Fluor® 555 - ab312133, Alexa Fluor® 750 - ab320989

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.

Trial sizes available!
Test your antibody or perform pre-screening before committing to a larger quantity. Sold in 20µl. Discover our selection of trial-size antibodies.

Supplementary info

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

Activity summary	SUN2 also known as Sad1 and UNC84 domain containing 2 is a protein that plays a fundamental role in the positioning of the nucleus in cells. It has a mass of approximately 89 kDa. This protein localizes to the inner nuclear membrane where it is involved in tethering the nucleus to the cytoskeleton. SUN2 is mainly expressed in tissues exhibiting high mechanical stress such as muscle and bone tissue. Its structural role anchors the nuclear lamina to the cytoskeleton helping to maintain cellular integrity.
Biological function summary	SUN2 connects the nuclear interior with the cytoskeleton through the LINC complex (Linker of Nucleoskeleton and Cytoskeleton). This complex also includes other proteins like Nesprin and Lamins helping to transmit mechanical signals across the nuclear envelope. SUN2 plays an essential role in processes like cell division nuclear migration and chromosomal positioning. Its function in the LINC complex makes it a significant player in maintaining nuclear morphology and ensuring proper cell division.
Pathways	SUN2 is involved in the mechanotransduction and cell-cycle regulation pathways. In mechanotransduction SUN2 helps translate mechanical signals into biochemical ones therefore influencing gene expression. Related proteins like Nesprin-2 interact within the LINC complex and contribute to these pathways. In cell-cycle regulation the protein helps align the mitotic spindle through connection with components of the cytoskeleton supporting accurate cell division. These pathways demonstrate SUN2's contribution to cellular responses to mechanical stimuli and cell growth regulation.
Associated diseases and disorders	Studies indicate that SUN2 mutations or abnormal expression levels are associated with muscular dystrophy and cancer. In muscular dystrophy defects in SUN2 can lead to impaired nuclear anchoring contributing to muscle weakness. It interacts with Lamin A/C and defects in these proteins are also linked to muscular dystrophies. In cancer SUN2 dysregulation may affect cellular architecture and chromosomal stability contributing to tumorigenesis. Understanding SUN2's roles and interactions offers potential pathways for therapeutic interventions.

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.

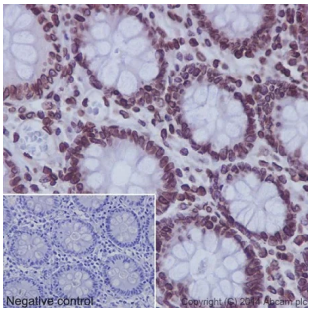
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

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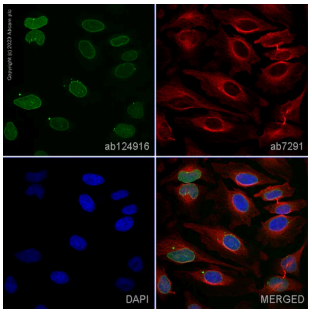
13 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-SUN2 antibody [EPR6557] (ab124916)

SUN2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-SUN2 antibody

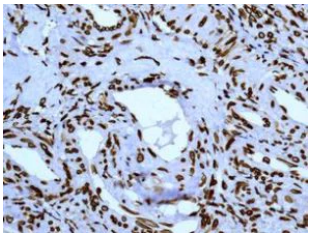
ab124916 staining SUN2 in Human colon tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Tissue was fixed and paraffin-embedded, antigen retrieval was by heat mediation in Tris/EDTA buffer pH9. Samples were incubated with primary antibody (1/500). An HRP-conjugated Goat anti-rabbit IgG, ab97051 (1/500), was used as the secondary antibody. Tissue counterstained with Hematoxylin. PBS was used in the negative control rather than the Primary antibody.



Immunocytochemistry/ Immunofluorescence - Anti-SUN2 antibody [EPR6557] (ab124916)

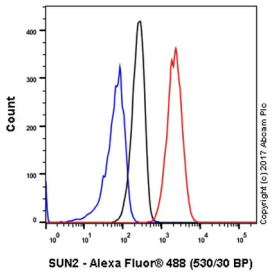
Immunofluorescence staining of SUN2 using ab124916 in HeLa cells. The cells were fixed with 4% formaldehyde (10 min), permeabilized with 0.1% Triton-X-100 (in PBS) for 5 mins and then blocked with 1% BSA/10% normal goat serum/0.3M glycine in 0.1% PBS-Tween for 1h. The cells were then incubated overnight at +4°C with ab124916 at 0.2 µg/ml and ab7291, Mouse monoclonal [DM1A] to

alpha Tubulin, at 1/1000 dilution. Cells were then incubated with ab150081, Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 dilution (shown in green) and ab150120, Goat Anti-Mouse IgG H&L (Alexa Fluor® 594) preadsorbed at 1/1000 dilution (shown in red). Nuclear DNA was labelled with DAPI (shown in blue). Image was acquired with a high-content analyser (Operetta CLS, Perkin Elmer) and a maximum intensity projection of confocal sections is shown.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-SUN2 antibody [EPR6557] (ab124916)

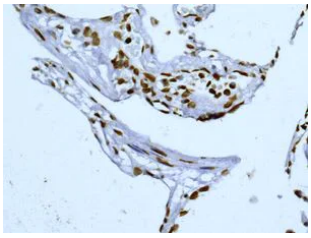
ab124916, unpurified, at a 1/250 dilution, staining SUN2 in paraffin embedded Human ovarian tissue by Immunohistochemistry.
Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Flow Cytometry (Intracellular) - Anti-SUN2 antibody [EPR6557] (ab124916)

SUN2 Flow Cytometry (Intracellular) staining using rabbit Anti-SUN2 antibody

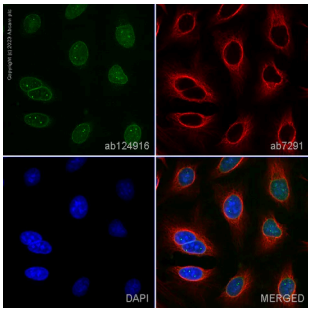
Intracellular Flow Cytometry analysis of HeLa (human cervix adenocarcinoma) cells labeling SUN2 (red) with ab124916 at a 1/30 dilution. Cells were fixed with 80% methanol and permeabilized with 0.1% Tween-20. A goat anti-rabbit IgG (Alexa Fluorr® 488) (ab150077) was used as the secondary antibody at a 1/2000 dilution. Black - Rabbit monoclonal IgG (ab172730). Blue (unlabeled control) - Cells without incubation with the primary and secondary antibodies.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-SUN2 antibody [EPR6557] (ab124916)

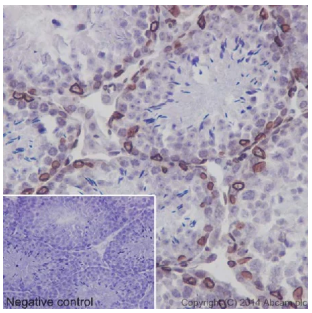
SUN2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-SUN2 antibody

ab124916, unpurified, at a 1/250 dilution, staining SUN2 in paraffin embedded Human lung tissue by Immunohistochemistry.
Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Immunocytochemistry/ Immunofluorescence - Anti-SUN2 antibody [EPR6557] (ab124916)

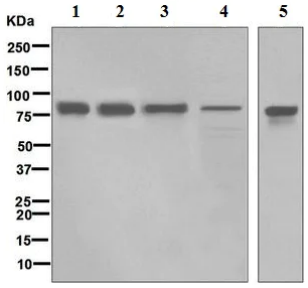
Immunofluorescence staining of SUN2 using ab124916 in HeLa cells. The cells were fixed with 100% methanol (5 min), permeabilized with 0.1% Triton-X-100 (in PBS) for 5 mins and then blocked with 1% BSA/10% normal goat serum/0.3M glycine in 0.1% PBS-Tween for 1h. The cells were then incubated overnight at +4°C with ab124916 at 1.0 µg/ml and ab7291, Mouse monoclonal [DM1A] to alpha Tubulin, at 1/1000 dilution. Cells were then incubated with ab150081, Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 dilution (shown in green) and ab150120, Goat Anti-Mouse IgG H&L (Alexa Fluor® 594) preadsorbed at 1/1000 dilution (shown in red). Nuclear DNA was labelled with DAPI (shown in blue). Image was acquired with a high-content analyser (Operetta CLS, Perkin Elmer) and a maximum intensity projection of confocal sections is shown.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-SUN2 antibody [EPR6557] (ab124916)

SUN2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-SUN2 antibody

ab124916 staining SUN2 in mouse testis tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Tissue was fixed and paraffin-embedded, antigen retrieval was by heat mediation in Tris/EDTA buffer pH9. Samples were incubated with primary antibody (1/500). An HRP-conjugated goat anti-rabbit IgG, ab97051 (1/500) was used as the secondary antibody. Tissue counterstained with Hematoxylin. PBS was used in the negative control rather than the Primary antibody.



Western blot - Anti-SUN2 antibody [EPR6557] (ab124916)

All lanes:
Western blot - Anti-SUN2 antibody [EPR6557] (ab124916) at 1/1000 dilution

Lane 1:
Human fetal muscle lysate at 10 µg

Lane 2:
Saos-2 lysate at 10 µg

Lane 3:
HeLa lysate at 10 µg

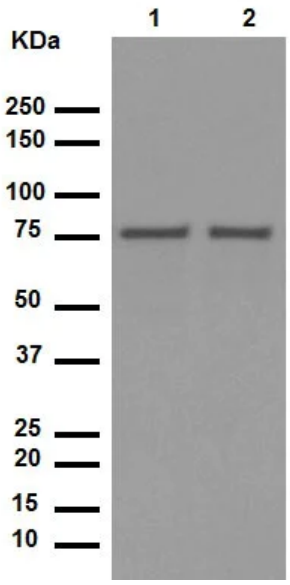
Lane 4:
Jurkat lysate at 10 µg

Lane 5:
HepG2 lysate at 10 µg

Secondary

All lanes:
HRP labelled goat anti-rabbit at 1/2000 dilution

Predicted band size: 80 kDa



Western blot - Anti-SUN2 antibody [EPR6557] (ab124916)

All lanes:
Western blot - Anti-SUN2 antibody [EPR6557] (ab124916) at 1/5000 dilution

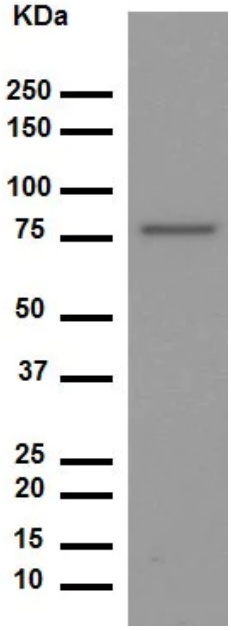
Lane 1:
HeLa cell Lysate at 20 µg

Lane 2:
Jurkat cell Lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), HRP- conjugated at 1/1000 dilution

Predicted band size: 80 kDa



Western blot - Anti-SUN2 antibody [EPR6557] (ab124916)

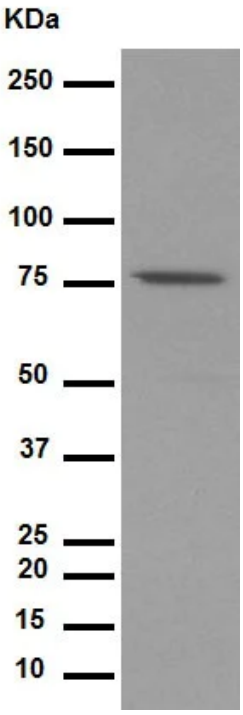
All lanes:
Western blot - Anti-SUN2 antibody [EPR6557] (ab124916) at 1/5000 dilution

All lanes:
Mouse heart lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), HRP- conjugated at 1/1000 dilution

Predicted band size: 80 kDa



Western blot - Anti-SUN2 antibody [EPR6557] (ab124916)

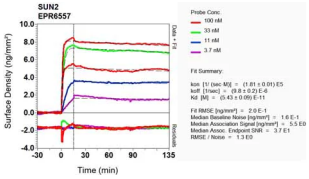
All lanes:
Western blot - Anti-SUN2 antibody [EPR6557] (ab124916) at 1/5000 dilution

All lanes:
Rat brain lysate at 10 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), HRP- conjugated at 1/1000 dilution

Predicted band size: 80 kDa



OI-RD Scanning - Anti-SUN2 antibody [EPR6557] (ab124916)

We have systematically measured KD (the equilibrium dissociation constant between the antibody and its antigen), of more than 840 recombinant antibodies to assess not only their individual KD values but also to see the average affinity of antibody. Based on the comparison with published literature values for mouse monoclonal antibodies, Recombinant antibodies appear to be on average 1-2 order of magnitude higher affinity.

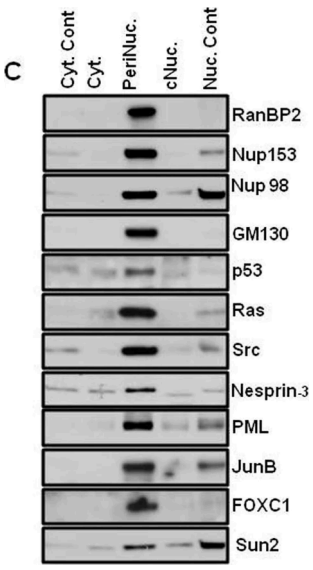


Image collected and cropped by CiteAb under a CC-BY license from the publication

Western blot - Anti-SUN2 antibody [EPR6557] (ab124916)

SUN2 western blot using anti-SUN2 antibody [EPR6557] ab124916. Publication image and figure legend from Shaiken, T. E. & Opekun, A. R., 2014, Sci Rep, PubMed 24815916.

ab124916 was used in this publication in western blot. This may not be the same as the application(s) guaranteed by Abcam. For a full list of applications guaranteed by Abcam for ab124916 please see the product overview.

Patterns of protein distribution in HeLa cells.Cyt. Cont is a control for cytosolic proteins obtained with the 0.3% Chaps buffer cell lysis (far left panel of bands) for the CDS method; Nuc. Cont is a control for nuclear proteins obtained with the classical method of nuclei isolation in hypotonic buffer (far right panel of bands) for the CDS method. (A) Proteins of cytosol: proteins extracted by regular lysis buffer and Buffer A from the cytoplasm. They are not detected in the perinuclear and the nuclear fractions. Nuclear fractions were obtained with new and classical nuclei extraction techniques (B) Proteins detected in the cytosol and the perinuclear fraction: proteins were detected as cytosolic proteins with both cellular lysis technique; in addition, these proteins also appeared in the perinuclear fraction by extraction with Buffer B. (C) Proteins of perinuclear fraction: proteins are detected only in perinuclear fraction by buffer B extraction. p53 protein was detected with long exposure. (D) Proteins detected in the nuclear and the perinuclear fractions: transcription factor CREB appeared in both fractions. (E) Nuclear proteins: proteins were detected in nuclear fraction. Nuclear proteins were obtained with new and classical nuclei isolation techniques. The PVDF membranes were cropped into two halves and the high and low molecular weight proteins were shown correspondingly.

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