abcam

ab198981

Alexa Fluor® 488 Anti-SUN2 antibody [EPR6557]

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Conjugation	Alexa Fluor® 488
Excitation/Emission	Ex: 495nm, Em: 519nm
Storage buffer	pH: 7.4 Preservative: 0.02% Sodium azide Constituents: PBS, 30% Glycerol (glycerin, glycerine), 1% 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	0.5 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Human
Dilution info	1/50 - 1/100
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

IHC-P

Expected

Species	Human, Mouse, 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	Blue Ice
Appropriate short-term storage duration	1-2 weeks
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, Store in the dark

Notes

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.

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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.

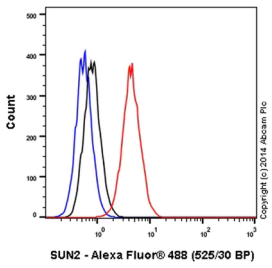
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In the unlikely event of one of our products not working as expected, you are covered by our product promise.

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3 product images



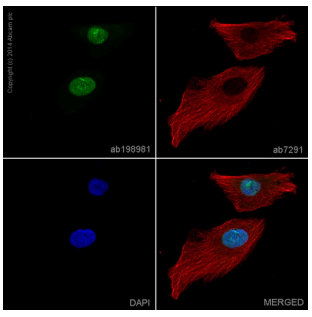
Flow Cytometry (Intracellular) - Alexa Fluor® 488 Anti-SUN2 antibody [EPR6557] (ab198981)

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

Overlay histogram showing HeLa cells stained with ab198981 (red line). The cells were fixed with 4% formaldehyde (10 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 (ab198981, 1/50 dilution) for 30 min at 22°C. Isotype control antibody (black line) was rabbit IgG (monoclonal) Alexa Fluor® 488 used at the same concentration and conditions as the primary antibody. Unlabelled 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 antibody gave a positive signal in HeLa cells fixed with 80% methanol (5 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions.

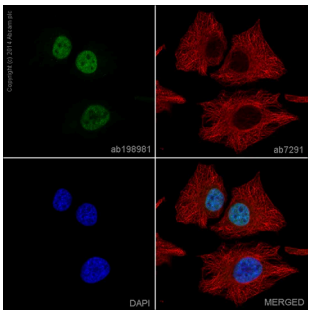


Immunocytochemistry/ Immunofluorescence - Alexa Fluor® 488 Anti-SUN2 antibody [EPR6557] (ab198981)

SUN2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-SUN2 antibody

ab198981 staining SUN2 in SKNSH cells. The cells were fixed with 100% methanol (5min), permeabilized with 0.1% Triton X-100 for 5 minutes 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 ab198981 at 1/100 dilution (shown in green) and ab7291 (Mouse monoclonal [DM1A] to

alpha Tubulin) at 1µg/ml. This was followed by an incubation at room temperature for 1h with ab150120, Goat Anti-Mouse IgG H&L (Alexa Fluor® 594) preadsorbed, at 1µg/ml (shown in red). Nuclear DNA was labelled with DAPI (shown in blue).
Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).



Immunocytochemistry/ Immunofluorescence - Alexa Fluor® 488 Anti-SUN2 antibody [EPR6557] (ab198981)

SUN2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-SUN2 antibody

ab198981 staining SUN2 in HeLa cells. The cells were fixed with 4% formaldehyde (10min), permeabilized with 0.1% Triton X-100 for 5 minutes 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 ab198981 at 1/50 dilution (shown in green) and ab7291 (Mouse monoclonal [DM1A] to alpha Tubulin) at 1µg/ml. This was followed by an incubation at room temperature for 1h with ab150120, Goat Anti-Mouse IgG H&L (Alexa Fluor® 594) preadsorbed, at 1µg/ml (shown in red). Nuclear DNA was labelled with DAPI (shown in blue).
Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).

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