abcam

ab212177

Anti-SATB2 antibody [EPNCIR130A] - 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	EPNCIR130A
Purification technique	Affinity purification Protein A
Concentration	0.979 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	-

Notes	-

Expected

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

IP

Not recommended

Species	Mouse, Rat, Human
Dilution info	-
Notes	-

WB

Tested

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
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	-

Target data

See full target information SATB2

Function Binds to DNA, at nuclear matrix- or scaffold-associated regions. Thought to recognize the sugar-phosphate structure of double-stranded DNA. Transcription factor controlling nuclear gene expression, by binding to matrix attachment regions (MARs) of DNA and inducing a local chromatin-loop remodeling. Acts as a docking site for several chromatin remodeling enzymes and also by recruiting corepressors (HDACs) or coactivators (HATs) directly to promoters and enhancers. Required for the initiation of the upper-layer neurons (UL1) specific genetic program and for the inactivation of deep-layer neurons (DL) and UL2 specific genes, probably by modulating BCL11B expression. Repressor of Ctip2 and regulatory determinant of corticocortical connections in the developing cerebral cortex. May play an important role in palate formation. Acts as a molecular node in a transcriptional network regulating skeletal development and osteoblast differentiation.

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

ab212177 is the carrier-free version of ab92446.
This antibody was developed as part of a collaboration between Epitomics, the National Cancer Institute's Center for Cancer Research and the lab of John Niederhuber. View antibodies from NCI Center for Cancer Research Collaboration.

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	The SATB2 protein also known as Special AT-rich Sequence-Binding Protein 2 is a DNA-binding protein with a mass of about 82 kDa. It plays a role in chromatin organization and transcriptional regulation by binding to AT-rich sequences within the nuclear matrix. SATB2 shows high expression levels in the cerebral cortex and the bone where it influences gene expression. It functions by facilitating the assembly of transcriptional machineries enhancing or repressing the transcription of its target genes.
Biological function summary	SATB2 acts as a regulator of multiple developmental processes. It serves as a master control gene in osteoblast differentiation and skeletal development by forming complexes with core binding factors. In the brain SATB2 contributes to the development and maintenance of neuronal networks that are essential for cognitive functions. Its binding to matrix attachment regions aids in the spatial

	organization of nuclear chromatin impacting gene expression pertinent to development and differentiation.
Pathways	SATB2 operates within the Wnt signaling pathway and the regulation of osteoblast differentiation. It interacts with proteins such as RUNX2 and β-catenin which play roles in bone formation and homeostasis. Within these pathways SATB2 modulates gene networks that influence the expression of structural and signaling proteins important for tissue differentiation and repair particularly in bone and neuronal contexts.
Associated diseases and disorders	SATB2 has associations with cleft palate and intellectual disabilities conditions often related to alterations in craniofacial and neurological development. It interacts with proteins like SOX9 and TCF7L1 which have roles in developmental processes that when disrupted can lead to such conditions. Understanding SATB2's involvement in these disorders provides insights into potential therapeutic targets for interventions aiming to mitigate developmental abnormalities.

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

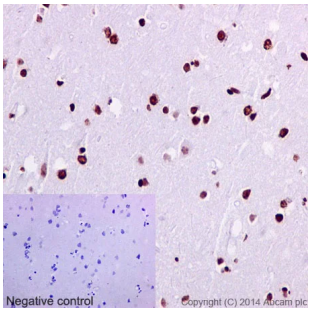
We do not recommend this combination. It is not covered by our product promise.

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.

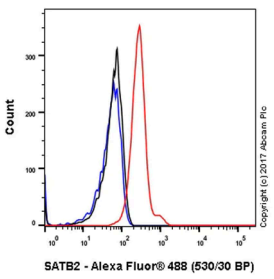
9 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-SATB2 antibody [EPNCIR130A] - BSA and Azide free (ab212177)

SATB2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-SATB2 antibody

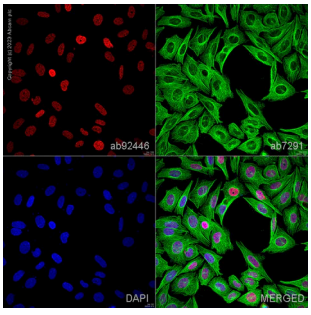
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human cerebral cortex tissue labelling SATB2 with purified ab92446 at 1/150. Heat mediated antigen retrieval was performed using Tris/EDTA buffer pH 9. A prediluted HRP-polymer conjugated anti-rabbit IgG was used as the secondary antibody. Negative control using PBS instead of primary antibody. Counterstained with hematoxylin.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab92446).



Flow Cytometry (Intracellular) - Anti-SATB2 antibody [EPNCIR130A] - BSA and Azide free (ab212177)

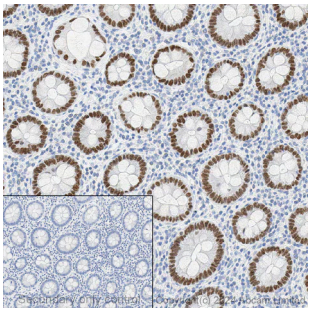
SATB2 Flow Cytometry (Intracellular) staining using rabbit Anti-SATB2 antibody

Intracellular Flow Cytometry analysis of SH-SY5Y cells (human neuroblastoma cell line from bone marrow) labeling SATB2 with purified ab92446 at 1/150 dilution (10ug/ml) (red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% Methanol. A Goat anti rabbit IgG (Alexa Fluor® 488) (ab150077) (1/2000 dilution) was used as the secondary antibody. Rabbit monoclonal IgG (Black) (ab172730) was used as the isotype control, cells without incubation with primary antibody and secondary antibody (Blue) were used as the unlabeled control.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab92446).



Immunocytochemistry/ Immunofluorescence - Anti-SATB2 antibody [EPNCIR130A] - BSA and Azide free (ab212177)

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab92446).
Immunocytochemistry/Immunofluorescence analysis of Saos-2 cells (human osteosarcoma cell line) labelling SATB2 (red) with purified ab92446 at 1/100 dilution. Cells were fixed with 4% paraformaldehyde and permeabilized with 0.1% Triton X-100. ab150083, an Alexa Fluor® 647-conjugated goat anti-rabbit IgG H&L (1/1000), was used as the secondary antibody. Tubulin (green) was stained with ab7291, an anti-alpha tubulin antibody (1/1000). DAPI (blue) was used as the nuclear counterstain.



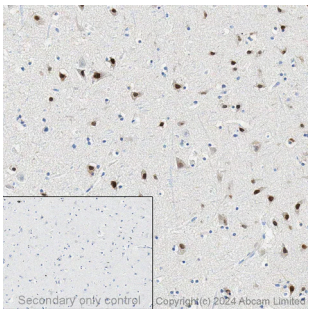
Immunohistochemistry - Anti-SATB2 antibody [EPNCIR130A] - BSA and Azide free (ab212177)

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab92446).

Immunohistochemical analysis of formalin fixed paraffin embedded human colon labelling SATB2 with ab92446 at a concentration of 2 µg/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, pH 8.5 for 56 mins.

ab92446 anti-SATB2 [EPNCIR130A] was incubated for 16mins 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).



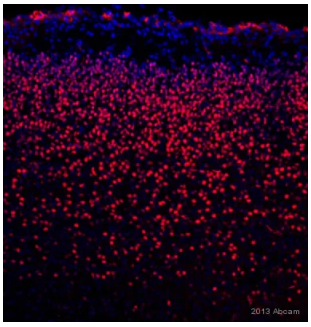
Immunohistochemistry - Anti-SATB2 antibody [EPNCIR130A] - BSA and Azide free (ab212177)

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab92446).

Immunohistochemical analysis of formalin fixed paraffin embedded human cortex labelling SATB2 with ab92446 at a concentration of 2 µg/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, pH 8.5 for 56 mins.

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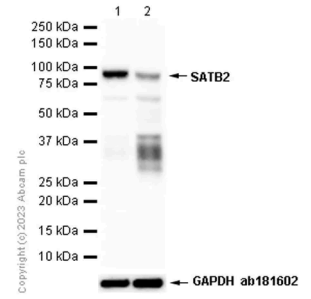


This image is courtesy of an anonymous customer review.

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-SATB2 antibody [EPNCIR130A] - BSA and Azide free (ab212177)

Unpurified ab92446 staining SATB2 in E18 Mouse brain tissue sections by Immunohistochemistry (PFA perfusion fixed frozen sections). Tissue samples were fixed by perfusion with paraformaldehyde, permeablized with 0.3% Triton-X 100 and blocked with 3% BSA for 30 minutes at 25°C. The sample was incubated with primary antibody (1/500 in TBS with 0.1% Triton-X 100 + 3% Goat serum) at 4°C for 12 hours. An Alexa Fluor® 546-conjugated Goat anti-rabbit polyclonal (1/1000) was used as the secondary antibody.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab92446).

Perform heat mediated antigen retrieval before commencing with IHC staining protocol.



Western blot - Anti-SATB2 antibody [EPNCIR130A] - BSA and Azide free (ab212177)

This data was developed using ab92446, the same antibody clone in a different buffer formulation.

Blocking and diluting buffer and concentration: 5% NFDM/TBST

Freshly made lysate is highly recommended to minimize protein degradation.

All lanes:
Western blot - Anti-SATB2 antibody [EPNCIR130A] (ab92446) at 1/10000 dilution

Lane 1:
Saos-2 (Human osteosarcoma epithelial) whole cell fresh lysate at 10 µg

Lane 2:
Saos-2 (Human osteosarcoma epithelial) whole cell lysate at 10 µg

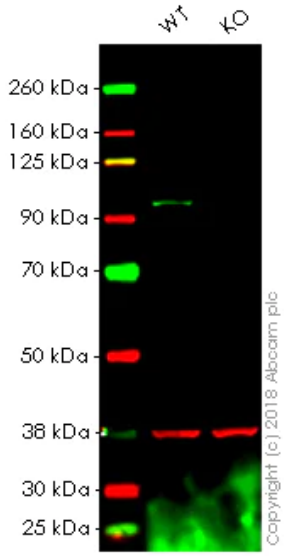
Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 83 kDa

Observed band size: 83 kDa

Exposure time: 20s



Western blot - Anti-SATB2 antibody [EPNCIR130A] - BSA and Azide free (ab212177)

Lanes 1 - 2: Merged signal (red and green). Green - ab92446 observed at 83 kDa. Red - loading control, ab9484, observed at 37 kDa.
ab92446 was shown to specifically react with SATB2 in wild-type HAP1 cells as signal was lost in SATB2 knockout cells. Wild-type and SATB2 knockout samples were subjected to SDS-PAGE. ab92446 and ab9484 (Mouse anti-GAPDH loading control) were incubated overnight at 4°C at 1/1000 dilution and 1/20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preabsorbed ab216773 and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed ab216776 secondary antibodies at 1/20000 dilution for 1 hour at room temperature before imaging.

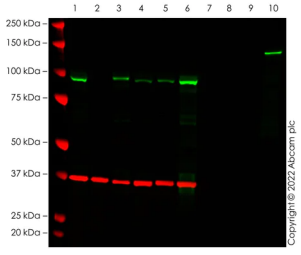
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab92446).

All lanes:
Western blot - Anti-SATB2 antibody [EPNCIR130A] (ab92446) at 1/1000 dilution

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

Lane 2:
SATB2 knockout HAP1 whole cell lysate at 20 µg

Predicted band size: 83 kDa



Western blot - Anti-SATB2 antibody [EPNCIR130A] - BSA and Azide free (ab212177)

This data was developed using the same antibody clone in a different buffer formulation (ab92446). False colour image of Western blot: Anti-SATB2 antibody [EPNCIR130A] staining at 1/1000 dilution, shown in green; Mouse anti-GAPDH antibody [6C5] (ab8245) loading control staining at 1/20000 dilution, shown in red. In Western blot, ab92446 was shown to bind specifically to SATB2. A band was observed at 100 kDa in wild-type HAP1 cell lysates with no signal observed at this size in SATB2 knockout cell line. To generate this image, wild-type and SATB2 knockout HAP1 cell lysates were analysed. First, samples were run on an SDS-PAGE gel then transferred onto

a nitrocellulose membrane. Membranes were blocked in 3 % milk in TBS-0.1 % Tween® 20 (TBS-T) before incubation with primary antibodies overnight at 4 °C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged. Secondary antibodies used were Goat anti-Rabbit IgG H&L 800CW and Goat anti-Mouse IgG H&L 680RD at 1/20000 dilution.
Lanes 1 - 10:
Western blot - Anti-SATB2 antibody [EPNCIR130A] (ab92446) at 1/1000 dilution

Lanes 1 - 10:
Western blot - Anti-SATB2 antibody [EPNCIR130A] - BSA and Azide free (ab212177) at 1/1000 dilution

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

Lane 2:
SATB2 knockout HAP1 cell lysate at 20 µg

Lane 3:
Mouse E18 Embyonic brain cell lysate at 20 µg

Lane 4:
NIH/3T3 cell lysate at 20 µg

Lane 5:
HT1080 cell lysate at 20 µg

Lane 6:
Saos-2 cell lysate at 20 µg

Lanes 7 and 9:
Empty

Lane 8:
SATB1 Recombinant Protein cell lysate at 0.1 µg

Lane 10:
SATB2 Recombinant Protein (ab132405) cell lysate at 0.1 µg

Secondary

All lanes:
Goat anti-Rabbit IgG H&L 800CW and Goat anti-Mouse IgG H&L 680RD at 1/20000 dilution

Performed under reducing conditions.

Observed band size: 100 kDa

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