abcam

ab220213

Anti-S100A4 antibody [EPR14639(2)] - 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	EPR14639(2)
Purification technique	Affinity purification Protein A
Specificity	Based on sequence homologies, the antibody may cross-react with other proteins of the same family (S100A1-12). We did not perform any experiments to confirm this. We do not guarantee IHC-P for mouse and rat. Some optimisation may be required for detection of the target protein due to low levels of endogenous expression in some samples. Please see images below for suitable positive controls.
Concentration	0.97 - 1.037 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	-
Notes	-

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	-
Notes	-

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

ICC/IF

Expected

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

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	-
Notes	We do not guarantee IHC-P for mouse and rat.

Not recommended

Species	Rat
Dilution info	-
Notes	We do not guarantee IHC-P for mouse and rat.

Species	Mouse
Dilution info	-
Notes	We do not guarantee IHC-P for mouse and rat.

Target data

See full target information S100A4

Function	Calcium-binding protein that plays a role in various cellular processes including motility, angiogenesis, cell differentiation, apoptosis, and autophagy (PubMed:16707441, PubMed:23752197, PubMed:30713770). Increases cell motility and invasiveness by interacting with non-muscle myosin heavy chain (NMMHC) IIA/MYH9 (PubMed:16707441). Mechanistically, promotes filament

depolymerization and increases the amount of soluble myosin-IIA, resulting in the formation of stable protrusions facilitating chemotaxis (By similarity). Also modulates the pro-apoptotic function of TP53 by binding to its C-terminal transactivation domain within the nucleus and reducing its protein levels (PubMed:23752197). Within the extracellular space, stimulates cytokine production including granulocyte colony-stimulating factor and CCL24 from T-lymphocytes (By similarity). In addition, stimulates T-lymphocyte chemotaxis by acting as a chemoattractant complex with PGLYRP1 that promotes lymphocyte migration via CCR5 and CXCR3 receptors (PubMed:26654597, PubMed:30713770).

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

ab220213 is the carrier-free version of ab197896.

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	S100A4 also known as metastasin or MTS1 is a protein with a molecular weight of approximately 12 kDa. It functions by binding calcium which induces conformational changes aiding in its interaction with target proteins. S100A4 is part of the S100 family of proteins characterized by two EF-hand calcium-binding motifs. Expression of S100A4 is observed in various cell types including fibroblasts

	endothelial cells and several tumor cells where it contributes to processes like cell motility invasion and angiogenesis.
Biological function summary	The role of S100A4 extends beyond mere calcium binding; it associates with the cytoskeleton promoting cell structures related to movement and metastasis. It does not act alone but often partners with proteins like myosin IIA to regulate cytoskeletal dynamics. Additionally S100A4 modulates extracellular matrix components and interacts with signaling pathways that control cancer progression making it significant in both normal physiological contexts and pathological states.
Pathways	Functional activities of S100A4 integrate into important pathways involved in cellular movement and metastasis. S100A4 plays roles in the regulation of the Wnt/β-catenin pathway which is pivotal for cell-cell interaction and fate determination. It also interacts with matrix metalloproteinases like MMPs thereby managing processes of tissue invasion and remodeling essential in cancer metastasis. Other pathways influencing cell adhesion and signal transduction may indirectly involve S100A4 through related proteins.
Associated diseases and disorders	Elevated S100A4 levels have implications in cancer particularly in enhancing metastasis in breast and colorectal cancers. The protein promotes tumor developments by inducing changes in the tumor microenvironment making it a target of interest in oncology. S100A4 also interacts with proteins like p53 and β-catenin which are critical in the pathology of tumors. Moreover S100A4 contributes to fibrotic diseases accentuating tissue remodeling activities by modulating fibroblast behavior and extracellular matrix deposition.

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

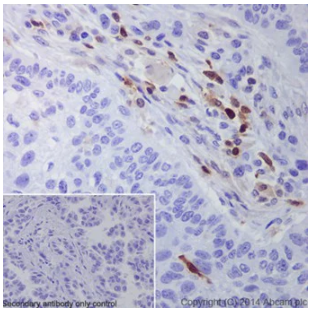
We do not recommend this combination. It is not covered by our product promise.

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.

10 product images



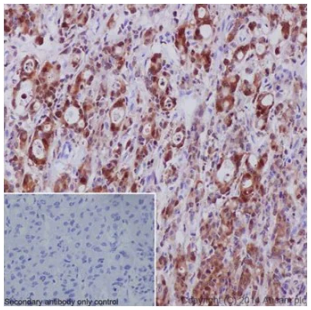
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-S100A4 antibody [EPR14639(2)] - BSA and Azide free (ab220213)

S100A4 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-S100A4 antibody

Immunohistochemical analysis of paraffin-embedded Human lung carcinoma tissue labeling S100A4 using ab197896 at 1/2000 dilution. Goat Anti-Rabbit IgG H&L (HRP) ab97051 was used as a secondary antibody at a dilution of 1/500 and cells were counterstained with Hematoxylin.
Inset image: negative control obtained using PBS instead of ab197896 and secondary antibody only.
Note: Nuclear and weakly staining on lung carcinoma tissue was observed.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab197896).

Heat mediated antigen retrieval was performed with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



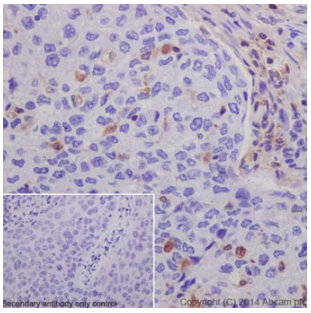
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-S100A4 antibody [EPR14639(2)] - BSA and Azide free (ab220213)

S100A4 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-S100A4 antibody

Immunohistochemical analysis of paraffin-embedded Human gastric carcinoma tissue labeling S100A4 using ab197896 at 1/2000 dilution. Goat Anti-Rabbit IgG H&L (HRP) ab97051 was used as a secondary antibody at 1/500 dilution. Cells were counterstained with Hematoxylin.
Inset image: negative control obtained using PBS instead of ab197896 and secondary antibody only.
Note: Cytoplasm and nuclear staining on human gastric carcinoma tissue was observed.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab197896).

Heat mediated antigen retrieval was performed with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



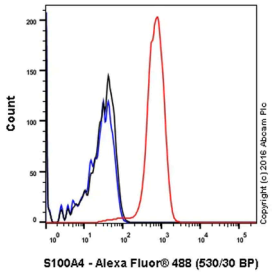
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-S100A4 antibody [EPR14639(2)] - BSA and Azide free (ab220213)

S100A4 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-S100A4 antibody

Immunohistochemical analysis of paraffin-embedded Human cervix carcinoma tissue labeling S100A4 using ab197896 at 1/2000 dilution. Goat Anti-Rabbit IgG H&L (HRP) ab97051 was used ay 1/500 dilution as a secondary antibody and cells were counterstained with Hematoxylin.
Inset image: negative control obtained using PBS instead of ab197896 and secondary antibody only.
Note: Nuclear and cytoplasm staining on cervix carcinoma tissue was observed.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab197896).

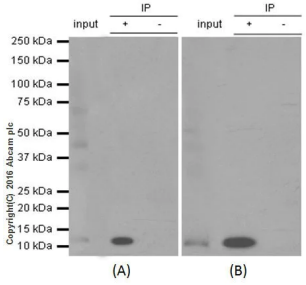
Heat mediated antigen retrieval was performed with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Flow Cytometry (Intracellular) - Anti-S100A4 antibody [EPR14639(2)] - BSA and Azide free (ab220213)

S100A4 Flow Cytometry (Intracellular) staining using rabbit Anti-S100A4 antibody

Intracellular Flow Cytometry analysis of Jurkat cells labelling S100A4 with ab197896 at 1/250 (red). Cells were fixed with 4% paraformaldehyde and permeabilized with 90% methanol. An Alexa Fluor® 488-conjugated goat anti-rabbit IgG (1/2000) was used as the secondary antibody. Black - Isotype control, rabbit monoclonal IgG. Blue - Unlabelled 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 (ab197896).



Immunoprecipitation - Anti-S100A4 antibody [EPR14639(2)] - BSA and Azide free (ab220213)

ab197896 at 1/40 immunoprecipitating S100A4 in A549 whole cell lysate observed at 12 KDa.
Lane 1 (input): A549 whole cell lysate 10µg

Lane 2 (+): ab197896 + A549 whole cell lysate.

Lane 3 (-): Rabbit monoclonal IgG (ab172730) instead of ab197896 in A549 whole cell lysate

For western blotting, Panel A: ab197896, 1:1000; Panel B: ab124805, 1:1000 and anti-rabbit IgG (HRP), specific to the non-reduced form of IgG was used as the secondary antibody (1/1500).

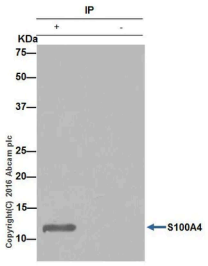
Blocking/Diluting buffer and concentration: 5% NFDM/TBST.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab197896).

All lanes:
Immunoprecipitation - Anti-S100A4 antibody [EPR14639(2)] (ab197896)

Predicted band size: 12 kDa

Exposure time: 10s



Immunoprecipitation - Anti-S100A4 antibody [EPR14639(2)] - BSA and Azide free (ab220213)

ab197896 at 1/40 immunoprecipitating S100A4 in A549 whole cell lysate observed at 12 KDa.
Lane 1 (+): ab197896 + A549 whole cell lysate.

Lane 2 (-): Rabbit monoclonal IgG (ab172730) instead of ab197896 in A549 whole cell lysate

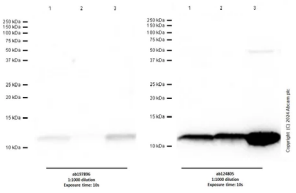
For western blotting, ab197896 at 1/1000 and anti-Rabbit IgG (HRP), specific to the non-reduced form of IgG (1/1500).

Blocking/Diluting 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 (ab197896).

All lanes:
Immunoprecipitation - Anti-S100A4 antibody [EPR14639(2)] - BSA and Azide free (ab220213)

Predicted band size: 12 kDa



Western blot - Anti-S100A4 antibody [EPR14639(2)] - BSA and Azide free (ab220213)

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab197896).

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

Compared with ab197896, ab124805 has higher sensitivity. We recommend ab124805 as an alternative for testing western blot.

We suggest optimizing experimental protocols (increasing lysate amount, using lower dilution or higher sensitivity ECL substrate) to improve results when using ab197896 in western blot.

All lanes:
Western blot - Anti-S100A4 antibody [EPR14639(2)] (ab197896) at 1/1000 dilution

Lane 1:
Human tonsil tissue lysate at 20 µg

Lane 2:
A549 (Human lung carcinoma epithelial cell) whole cell lysates at 20 µg

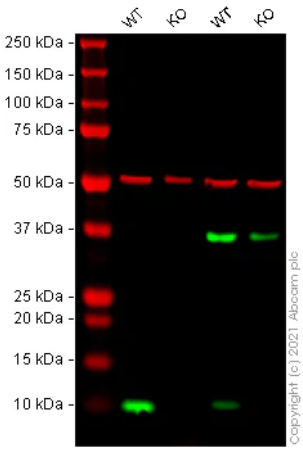
Lane 3:
HeLa (human cervix adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Secondary

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

Observed band size: 12 kDa

Exposure time: 10s



Western blot - Anti-S100A4 antibody [EPR14639(2)] - BSA and Azide free (ab220213)

S100A4 Western blot staining using rabbit Anti-S100A4 antibody

False colour image of Western blot: Anti-S100A4 antibody [EPR14639(2)] staining at 1/1000 dilution, shown in green; loading control ab7291 (Mouse anti-Alpha Tubulin [DM1A]) staining at 1/20000 dilution, shown in red. In Western blot, ab197896 was shown to bind specifically to S100A4. A band was observed at 11 kDa in wild-type HeLa and A549 cell lysates with no signal observed at this size in S100A4 knockout HeLa cell line ab265709 (knockout cell lysate ab257046) and S100A4 knockout A549 cell line ab261865 (knockout cell lysate ab261674). To generate this image, wild-type and S100A4 knockout HeLa and S100A4 knockout A549 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 (IRDye® 800CW) preabsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed (ab216776) at 1/20000 dilution.
All lanes:
Western blot - Anti-S100A4 antibody [EPR14639(2)] (ab197896) at 1/1000 dilution

Lane 1:

Wild-type HeLa cell lysate at 20 µg

Lane 2:
S100A4 knockout HeLa cell lysate at 20 µg

Lane 2:
Western blot - Human S100A4 knockout HeLa cell line (ab265709)

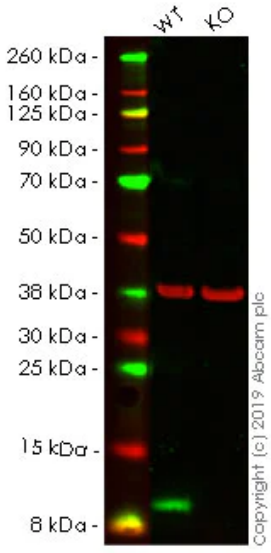
Lane 3:
Wild-type A549 cell lysate at 20 µg

Lane 4:
S100A4 knockout A549 cell lysate at 20 µg

Performed under reducing conditions.

Predicted band size: 12 kDa

Observed band size: 11 kDa



Western blot - Anti-S100A4 antibody [EPR14639(2)] - BSA and Azide free (ab220213)

S100A4 Western blot staining using rabbit Anti-S100A4 antibody

This data was developed using the same antibody clone in a different buffer formulation (ab197896).
Lanes 1 - 2: Merged signal (red and green). Green - ab197896 observed at 12 kDa. Red - loading control ab8245 observed at 37 kDa.

ab197896 Recombinant Anti-S100A4 antibody [EPR14639(2)] was shown to specifically react with S100A4 in wild-type HeLa cells. Loss of signal was observed when knockout cell line ab261758 (knockout cell lysate ab257045) was used. Wild-type and S100A4 knockout samples were subjected to SDS-PAGE. ab197896 and Anti-alpha Tubulin antibody [EP1332Y] - Microtubule Marker (ab52866) were incubated overnight at 4°C at 1 in 1000 dilution and 1 in 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 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-S100A4 antibody [EPR14639(2)] (ab197896) at 1/1000 dilution

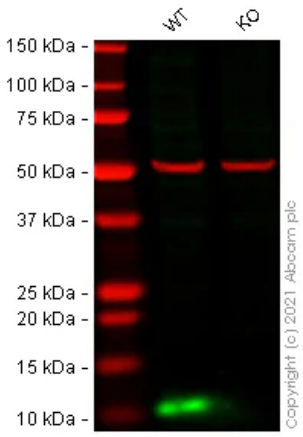
Lane 1:
Wild-type HeLa cell lysate at 20 µg

Lane 2:
S100A4 knockout HeLa cell lysate at 20 µg

Performed under reducing conditions.

Predicted band size: 12 kDa

Observed band size: 12 kDa



Western blot - Anti-S100A4 antibody [EPR14639(2)] - BSA and Azide free (ab220213)

S100A4 Western blot staining using rabbit Anti-S100A4 antibody

This data was developed using the same antibody clone in a different buffer formulation (ab197896).
Lanes 1 - 2: Merged signal (red and green). Green - ab197896 observed at 11 kDa. Red - loading control ab7291 (Mouse anti-Alpha Tubulin [DM1A]) observed at 55 kDa.

ab197896 was shown to react with S100A4 in wild-type HeLa cells in Western blot with loss of signal observed in S100A4 knockout cell line ab265709 (S100A4 knockout cell lysate ab257046). Wild-type HeLa and S100A4 knockout cell lysates were subjected to SDS-PAGE. Membranes were blocked in 3 % milk in TBS-T (0.1 % Tween®) before incubation with ab197896 and ab7291 (Mouse anti-Alpha Tubulin [DM1A]) overnight at 4 °C at a 1 in 1000 dilution and a 1 in 20000 dilution respectively. Blots were incubated 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 in 20000 dilution for 1 h at room temperature before imaging.

All lanes:
Western blot - Anti-S100A4 antibody [EPR14639(2)] (ab197896) at 1/1000 dilution

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

Lane 2:
Western blot - Human S100A4 knockout HeLa cell lysate (ab257046) at 20 µg

Performed under reducing conditions.

Predicted band size: 12 kDa

Observed band size: 11 kDa

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