abcam

ab243108

Anti-S100A9 antibody [EPR22332-75] - 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	EPR22332-75
Purification technique	Affinity purification Protein A
Concentration	2.118 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Not recommended

Species	Mouse, Rat
Dilution info	-

Notes	-

WB

Tested

Species	Mouse
Dilution info	-
Notes	-

Not recommended

Species	Rat
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Mouse
Dilution info	-
Notes	-

Expected

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

IHC-Fr

Tested

Species	Mouse
Dilution info	-
Notes	

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

Not recommended

Species	Rat
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Mouse
Dilution info	-
Notes	-

Expected

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

IHC-P

Tested

Species	Rat
Dilution info	-
Notes	-

Expected

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

Target data

See full target information S100a9

Function

S100A9 is a calcium- and zinc-binding protein which plays a prominent role in the regulation of inflammatory processes and immune response (PubMed:15331440, PubMed:17767165, PubMed:18403730, PubMed:19402754, PubMed:22804476, PubMed:34562450). It can induce neutrophil chemotaxis, adhesion, can increase the bactericidal activity of neutrophils by promoting phagocytosis via activation of SYK, PI3K/AKT, and ERK1/2 and can induce degranulation of neutrophils by a MAPK-dependent mechanism (By similarity). Predominantly found as calprotectin (S100A8/A9) which has a wide plethora of intra- and extracellular functions (By similarity). The intracellular functions include: facilitating leukocyte arachidonic acid trafficking and metabolism, modulation of the tubulin-dependent cytoskeleton during migration of phagocytes and activation of the neutrophilic NADPH-oxidase (PubMed:15331440). Also participates in regulatory T-cell differentiation together with CD69 (By similarity). Activates NADPH-oxidase by facilitating the enzyme complex assembly at the cell membrane, transferring arachidonic acid, an essential cofactor, to the enzyme complex and S100A8 contributes to the enzyme assembly by directly binding to NCF2/P67PHOX (By similarity). The extracellular functions involve pro-inflammatory, antimicrobial, oxidant-scavenging and apoptosis-inducing activities (PubMed:21382888). Its pro-inflammatory activity includes recruitment of leukocytes, promotion of cytokine and chemokine production, and regulation of leukocyte adhesion and migration (By similarity). Acts as an alarmin or a danger associated molecular pattern (DAMP) molecule and stimulates innate immune cells via binding to pattern recognition receptors such as Toll-like receptor 4 (TLR4) and receptor for advanced glycation endproducts (AGER) (PubMed:17767165, PubMed:18403730, PubMed:19402754). Binding to TLR4 and AGER activates the MAP-kinase and NF-kappa-B signaling pathways resulting in the amplification of the pro-inflammatory cascade (PubMed:17767165, PubMed:18403730, PubMed:19402754, PubMed:22804476). Has antimicrobial activity towards bacteria and fungi and exerts its antimicrobial activity probably via chelation of Zn(2+) which is essential for microbial growth (By similarity). Can induce cell death via autophagy and apoptosis and this occurs through the cross-talk of mitochondria and lysosomes via reactive oxygen species (ROS) and the process involves BNIP3 (By similarity). Can regulate neutrophil number and apoptosis by an anti-apoptotic effect; regulates cell survival via ITGAM/ITGB and TLR4 and a signaling mechanism involving MEK-ERK (By similarity). Its role as an oxidant scavenger has a protective role in preventing exaggerated tissue damage by scavenging oxidants (By similarity). The iNOS-S100A8/A9 transnitrosylase complex is proposed to direct selective inflammatory stimulus-dependent S-nitrosylation of multiple targets such as GAPDH, NXA5, EZR, MSN and VIM by recognizing a [IL]-x-C-x-x-[DE] motif (By similarity).

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

ab243108 is the carrier-free version of ab242945.

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	S100A9 also known as calgranulin B or MRP-14 is a calcium-binding protein with a molecular weight of approximately 13 kDa. It belongs to the S100 family and forms part of a heterodimeric complex with S100A8. S100A9 is largely found in myeloid cells such as neutrophils and monocytes. It plays a significant role in the cytosol and can be secreted to the extracellular space under specific stress conditions.
Biological function summary	S100A9 impacts inflammatory responses and immune regulation. It partners with S100A8 to form the calprotectin complex which acts as a strong pro-inflammatory mediator. This complex binds to receptors like RAGE and TLR4 initiating signaling pathways that promote inflammation. S100A9 also participates in leukocyte

	recruitment and has antimicrobial properties blocking the growth of bacteria and fungi by chelating essential metal ions.
Pathways	Several are influenced by S100A9 including the NF-kB and MAPK signaling pathways. Through its interaction with RAGE and TLR4 receptors S100A9 influences the activation of these pathways which are important in the regulation of inflammatory and immune responses. Other proteins involved in these pathways include MyD88 for TLR4 signaling and various kinases for MAPK signaling positioning S100A9 as an important regulator within the inflammatory networks.
Associated diseases and disorders	S100A9 links to various inflammatory and autoimmune conditions such as rheumatoid arthritis and inflammatory bowel disease. Increased levels of S100A9 have been observed in these conditions where it augments the inflammatory response. In rheumatoid arthritis for example S100A9 upregulation correlates with increased joint inflammation and damage. The protein's interaction with S100A8 in these diseases highlights its contribution to the pathogenesis and progression of inflammation-related conditions.

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

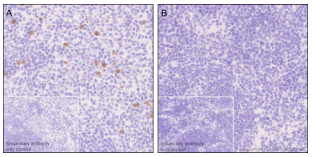
We do not recommend this combination. It is not covered by our product promise.

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.

6 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-S100A9 antibody [EPR22332-75] - BSA and Azide free (ab243108)

S100A9 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-S100A9 antibody

This data was developed using ab242945, the same antibody clone in a different buffer formulation.
Immunohistochemical analysis of paraffin-embedded mouse spleen tissue labeling S100A9 with ab242945 at 1/200 dilution (2.6 µg/ml).

Positive staining on (A) spleen tissue from wild-type C57BL/6JGpt mice and no staining on (B) spleen tissue from S100a9 knockout mice.

The section was incubated with ab242945 for 30 mins at room temperature.

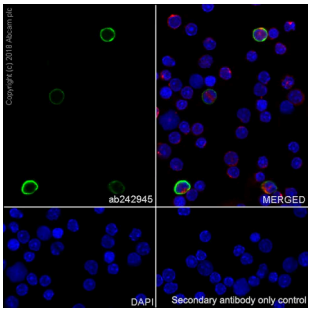
LeicaDS9800 (BOND™ Polymer Refine Detection), ready to use, was used as the secondary antibody.

The immunostaining was performed on a Leica Biosystems BOND® RX instrument.

Counterstained with Hematoxylin.

Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins.

The tissue samples were kindly provided by GemPharmatech. C57BL/6JGpt wildtype mice and S100a9-KO homozygous mice (Strain ID: T014553).

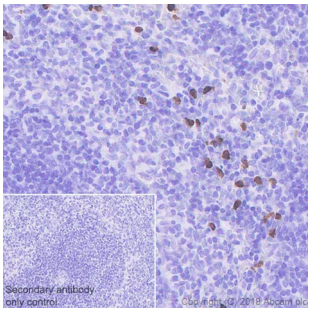


Immunocytochemistry/ Immunofluorescence - Anti-S100A9 antibody [EPR22332-75] - BSA and Azide free (ab243108)

S100A9 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-S100A9 antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized mouse spleen cells labeling S100A9 with ab242945 at 1/1000 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing membranous staining in subsets of spleen cells (PMID: 2666142) is observed. The nuclear counter stain is DAPI (blue). Tubulin is detected with Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) (ab195889) at 1/200 dilution (red). Secondary antibody only control: Used PBS instead of primary antibody, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab242945).

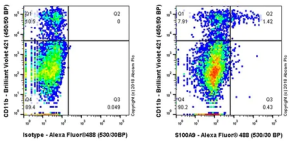


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-S100A9 antibody [EPR22332-75] - BSA and Azide free (ab243108)

S100A9 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-S100A9 antibody

Immunohistochemical analysis of paraffin-embedded rat spleen tissue labeling S100A9 with ab242945 at 1/500 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) ready to use. Positive staining on granulocytes of rat spleen (PMID: 25860480) is observed. Counter stained with hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) ready to use.
Heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0).

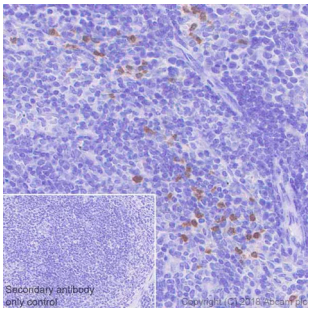
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab242945).



Flow Cytometry (Intracellular) - Anti-S100A9 antibody [EPR22332-75] - BSA and Azide free (ab243108)

S100A9 Flow Cytometry (Intracellular) staining using rabbit Anti-S100A9 antibody

Intracellular flow cytometric analysis of2% paraformaldehyde-fixed, 0.1% Tween-20 permeabilized mouse primary splenocytes labeling S100A9 with ab242945 at 1/600 dilution (right panel) compared with an Isotype control Rabbit IgG, monoclonal [EPR25A] - Isotype Control (ab172730) (left panel). Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077), at 1/2000 dilution 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 (ab242945).

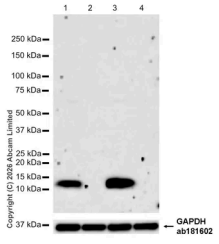


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-S100A9 antibody [EPR22332-75] - BSA and Azide free (ab243108)

S100A9 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-S100A9 antibody

Immunohistochemical analysis of paraffin-embedded mouse spleen tissue labeling S100A9 with ab242945 at 1/100 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) ready to use. Positive staining on granulocytes of mouse spleen (PMID: 25860480) is observed. Counter stained with hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) ready to use.
Heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0).

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab242945).



Western blot - Anti-S100A9 antibody [EPR22332-75] - BSA and Azide free (ab243108)

S100A9 Western blot staining using rabbit Anti-S100A9 antibody

This data was developed using ab242945, the same antibody clone in a different buffer formulation.
Blocking and diluting buffer and concentration: 5% NFDM/TBST.

In Western blot, Anti-GAPDH antibody [EPR16891] - Loading Control (ab181602) staining at 1/200,000 dilution.

The tissue samples were kindly provided by GemPharmatech. C57BL/6JGpt wildtype mice and S100a9-KO homozygous mice (Strain ID: T014553).
All lanes:
Western blot - Anti-S100A9 antibody [EPR22332-75] (ab242945) at 1/1000 dilution

Lane 1:
Wild-type mouse spleen tissue lysate (female) at 20 µg

Lane 2:
S100a9 knockout mouse spleen tissue lysate (female) at 20 µg

Lane 3:
Wild-type mouse spleen tissue lysate (male) at 20 µg

Lane 4:
S100a9 knockout mouse spleen tissue lysate (male) at 20 µg

Secondary

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

Observed band size: 14 kDa, 36 kDa

Exposure time: 180s

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