abcam

ab7429

FITC Anti-S100A9 + Calprotectin (S100A8/A9 complex) antibody [MAC387]

Anti-S100A9 + Calprotectin (S100A8/A9 complex) antibody [MAC387] conjugated to FITC - suitable for intracellular flow cytometry, and reacts with human, rabbit, rat, Crab-Eating Macaque and other samples. Clone [MAC387] is a mouse monoclonal antibody cited in 21 publications.

Key facts

Isotype	IgG1
Host species	Mouse
Conjugation	FITC
Excitation/Emission	Ex: 495nm, Em: 519nm
Storage buffer	Preservative: 0.1% Sodium azide Constituents: 0.2% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	Cell preparation containing Human monocytes protein. The exact immunogen used to generate this antibody is proprietary information.
Clone number	MAC387
Purification technique	Affinity purification Protein G
Specificity	This antibody recognises the L1 or Calprotectin molecule, an intracytoplasmic antigen comprised of a 12kD alpha chain and a 14kD beta chain. The antigen is expressed by granulocytes, monocytes and tissue macrophages. Variable results have been reported for staining brain macrophages and microglia.
Concentration	0.1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Purified IgG prepared by affinity chromatography on Protein G from tissue culture supernatant

Reactivity data

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	10 µL for 10^6 Cells
Notes	Membrane permeabilisation is required for this application. ab91356 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Expected

Species	Rabbit
Dilution info	10 µL for 10^6 Cells
Notes	Membrane permeabilisation is required for this application. ab91356 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Species	Cynomolgus monkey
Dilution info	10 µL for 10^6 Cells
Notes	Membrane permeabilisation is required for this application. ab91356 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Species	Baboon
Dilution info	10 µL for 10^6 Cells
Notes	Membrane permeabilisation is required for this application. ab91356 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Species	Cow
Dilution info	10 µL for 10^6 Cells
Notes	Membrane permeabilisation is required for this application. ab91356 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Species	Horse
Dilution info	10 µL for 10^6 Cells

Notes	Membrane permeabilisation is required for this application. ab91356 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Species	Cat
Dilution info	10 µL for 10^6 Cells
Notes	Membrane permeabilisation is required for this application. ab91356 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Species	Rhesus monkey
Dilution info	10 µL for 10^6 Cells
Notes	Membrane permeabilisation is required for this application. ab91356 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Species	Dog
Dilution info	10 µL for 10^6 Cells
Notes	Membrane permeabilisation is required for this application. ab91356 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Species	Guinea pig
Dilution info	10 µL for 10^6 Cells
Notes	Membrane permeabilisation is required for this application. ab91356 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Species	Monkey
Dilution info	10 µL for 10^6 Cells
Notes	Membrane permeabilisation is required for this application. ab91356 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Species	Rat
Dilution info	10 µL for 10^6 Cells
Notes	Membrane permeabilisation is required for this application. ab91356 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Species	Pig
Dilution info	10 µL for 10^6 Cells
Notes	Membrane permeabilisation is required for this application. ab91356 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

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:12626582, PubMed:15331440, PubMed:16258195, PubMed:19122197, PubMed:20103766, PubMed:21325622, PubMed:8423249). 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 (PubMed:12626582, PubMed:15331440, PubMed:20103766). Predominantly found as calprotectin (S100A8/A9) which has a wide plethora of intra- and extracellular functions (PubMed:16258195, PubMed:19122197, PubMed:8423249). 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, PubMed:21325622). Also participates in regulatory T-cell differentiation together with CD69 (PubMed:26296369). 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 (PubMed:15642721, PubMed:22808130). The extracellular functions involve pro-inflammatory, antimicrobial, oxidant-scavenging and apoptosis-inducing activities (PubMed:19534726, PubMed:8423249). Its pro-inflammatory activity includes recruitment of leukocytes, promotion of cytokine and chemokine production, and regulation of leukocyte adhesion and migration (PubMed:15598812, PubMed:21487906). 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: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: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 (PubMed:19087201). 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 (PubMed:19935772). 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 (PubMed:22363402). Its role as an oxidant scavenger has a protective role in preventing exaggerated tissue damage by scavenging oxidants (PubMed:21912088, PubMed:22489132). Can act as a potent amplifier of inflammation in autoimmunity as well as in cancer development and tumor spread (PubMed:16258195). Has transnitrosylase activity; in oxidatively-modified low-densitity lipoprotein (LDL(ox))-induced S-nitrosylation of GAPDH on 'Cys-247' proposed to transfer the NO moiety from NOS2/iNOS to GAPDH via its own S-nitrosylated Cys-3 (PubMed:25417112). The iNOS-S100A8/A9 transnitrosylase complex is proposed to also direct selective inflammatory stimulus-dependent S-nitrosylation of multiple targets such as ANXA5, EZR, MSN and VIM by recognizing a [IL]-x-C-x-x-[DE] motif (PubMed:25417112).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C

Supplementary info

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

Activity summary	S100A9 also known as calprotectin when forming a complex with S100A8 is a calcium and zinc binding protein belonging to the S100 family. The S100A8/A9 complex sometimes referenced as low calprotectin has a molecular mass of approximately 24 kDa. These proteins express mainly in neutrophils and monocytes but also appear in epithelial cells under certain conditions. S100A9 plays a role in intracellular and extracellular regulations including protein phosphorylation and enzyme activity modulation.
Biological function summary	S100A9 participates in inflammation by modulating leukocyte recruitment and adhesion. As part of the calprotectin complex with S100A8 it contributes to immune response signaling and mediates migration of inflammatory cells to infection sites. The S100A8/A9 complex releases from neutrophils and acts as a damage-associated molecular pattern (DAMP) which interacts with pattern recognition receptors to amplify the inflammatory reaction.
Pathways	S100A9 and its complex with S100A8 integrate into the innate immune system's regulation. Notably these proteins engage in the NF-kB signaling pathway which plays a critical role in inflammation and cell survival. S100A9 interacts with Toll-like receptor 4 (TLR4) to activate downstream signaling cascades which link it to other inflammatory mediators like IL-1β enhancing the pro-inflammatory response.
Associated diseases and disorders	S100A9's regulation links to several inflammatory conditions such as rheumatoid arthritis and inflammatory bowel disease. In these diseases the S100A8/A9 complex levels often increase indicating a role in pathogenesis. S100A9's interaction with TLR4 also connects it to these disorders as TLR4 involvement often exacerbates inflammatory signaling pathways in these 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

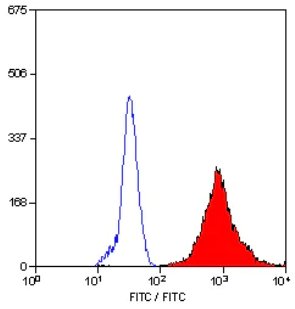
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Flow Cytometry (Intracellular) - FITC Anti-S100A9 + Calprotectin (S100A8/A9 complex) antibody [MAC387] (ab7429)

S100A9 + Calprotectin (S100A8/A9 complex) Flow Cytometry (Intracellular) staining using mouse Anti-S100A9 + Calprotectin (S100A8/A9 complex) antibody

ab7429 staining S100A9 + Calprotectin (FITC) in human peripheral blood granulocyte by Intracellular Flow Cytometry analysis.

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