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S100A9 Rabbit mAb

Catalog # AP76047

Product Information

Application	WB, IHC-P, FC
Primary Accession	P31725
Reactivity	Rat, Mouse
Host	Rabbit
Clonality	Monoclonal Antibody
Isotype	IgG
Conjugate	Unconjugated
Purification	Affinity Purified
Calculated MW	13049

Additional Information

Gene ID	20202
Other Names	S100A9
Dilution	WB~~1:500-1:1000 IHC-P~~N/A FC~~1:10~50
Format	Liquid in 50mM Tris-Glycine(pH 7.4), 0.15M NaCl, 40%Glycerol, 0.01% sodium azide and 0.05% BSA.
Storage	Store at 4°C short term. Aliquot and store at -20°C long term. Avoid freeze/thaw cycles.

Protein Information

Name	S100a9
Synonyms	Cagb, Mrp14
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).

Cellular Location

Secreted {ECO:0000250|UniProtKB:P06702}. Cytoplasm {ECO:0000250|UniProtKB:P06702}. Cytoplasm, cytoskeleton {ECO:0000250|UniProtKB:P06702}. Cell membrane {ECO:0000250|UniProtKB:P06702}; Peripheral membrane protein {ECO:0000250|UniProtKB:P06702}. Note=Predominantly localized in the cytoplasm. Upon elevation of the intracellular calcium level, translocated from the cytoplasm to the cytoskeleton and the cell membrane. Upon neutrophil activation or endothelial adhesion of monocytes, is secreted via a microtubule-mediated, alternative pathway {ECO:0000250|UniProtKB:P06702}

Background

Predicted to enable calcium ion binding activity and calcium-dependent protein binding activity. Involved in peptidyl-cysteine S-nitrosylation; positive regulation of blood coagulation; and regulation of translation. Acts upstream of or within several processes, including astrocyte development; leukocyte chemotaxis; and regulation of integrin biosynthetic process. Part of S100A9 complex. Is active in cornified envelope. Is expressed in several structures, including jaw; liver; otic capsule; skeleton; and spleen red pulp. Human ortholog(s) of this gene implicated in myocarditis. Orthologous to human S100A9 (S100 calcium binding protein A9).

Images

Western blot analysis of S100A9 in mouse spleen, mouse lung lysates using S100 alpha9 antibody.