

[8423249](http://www.uniprot.org/citations/8423249), PubMed: [16258195](http://www.uniprot.org/citations/16258195), PubMed: [19122197](http://www.uniprot.org/citations/19122197), PubMed: [21325622](http://www.uniprot.org/citations/21325622)). 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](http://www.uniprot.org/citations/12626582), PubMed: [15331440](http://www.uniprot.org/citations/15331440), PubMed: [20103766](http://www.uniprot.org/citations/20103766)). Predominantly found as calprotectin (S100A8/A9) which has a wide plethora of intra- and extracellular functions (PubMed: [8423249](http://www.uniprot.org/citations/8423249), PubMed: [16258195](http://www.uniprot.org/citations/16258195), PubMed: [19122197](http://www.uniprot.org/citations/19122197)). 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](http://www.uniprot.org/citations/15331440), PubMed: [21325622](http://www.uniprot.org/citations/21325622)). 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](http://www.uniprot.org/citations/15642721), PubMed: [22808130](http://www.uniprot.org/citations/22808130)). The extracellular functions involve pro-inflammatory, antimicrobial, oxidant-scavenging and apoptosis-inducing activities (PubMed: [8423249](http://www.uniprot.org/citations/8423249), PubMed: [19534726](http://www.uniprot.org/citations/19534726)). Its pro-inflammatory activity includes recruitment of leukocytes, promotion of cytokine and chemokine production, and regulation of leukocyte adhesion and migration (PubMed: [15598812](http://www.uniprot.org/citations/15598812), PubMed: [21487906](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/19402754), PubMed: [22804476](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/22363402)). Its role as an oxidant scavenger has a protective role in preventing exaggerated tissue damage by scavenging oxidants (PubMed: [22489132](http://www.uniprot.org/citations/22489132), PubMed: [21912088](http://www.uniprot.org/citations/21912088)). Can act as a potent amplifier of inflammation in autoimmunity as well as in cancer development and tumor spread (PubMed: [16258195](http://www.uniprot.org/citations/16258195)). Has transnitrosylase activity; in oxidatively-modified low-density 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: [16258195](http://www.uniprot.org/citations/16258195)).

<http://www.uniprot.org/citations/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:http://www.uniprot.org/citations/25417112).

Cellular Location

Secreted. Cytoplasm. Cytoplasm, cytoskeleton. Cell membrane; Peripheral membrane protein. Note=Predominantly localized in the cytoplasm. Upon elevation of the intracellular calcium level, translocated from the cytoplasm to the cytoskeleton and the cell membrane (PubMed:18786929). Upon neutrophil activation or endothelial adhesion of monocytes, is secreted via a microtubule-mediated, alternative pathway (PubMed:15598812).

Tissue Location

Calprotectin (S100A8/9) is predominantly expressed in myeloid cells. Except for inflammatory conditions, the expression is restricted to a specific stage of myeloid differentiation since both proteins are expressed in circulating neutrophils and monocytes but are absent in normal tissue macrophages and lymphocytes. Under chronic inflammatory conditions, such as psoriasis and malignant disorders, also expressed in the epidermis. Found in high concentrations at local sites of inflammation or in the serum of patients with inflammatory diseases such as rheumatoid, cystic fibrosis, inflammatory bowel disease, Crohn's disease, giant cell arteritis, cystic fibrosis, Sjogren's syndrome, systemic lupus erythematosus, and progressive systemic sclerosis. Involved in the formation and deposition of amyloids in the aging prostate known as corpora amylacea inclusions. Strongly up-regulated in many tumors, including gastric, esophageal, colon, pancreatic, bladder, ovarian, thyroid, breast and skin cancers

Goat Anti-S100A9 Antibody - Protocols

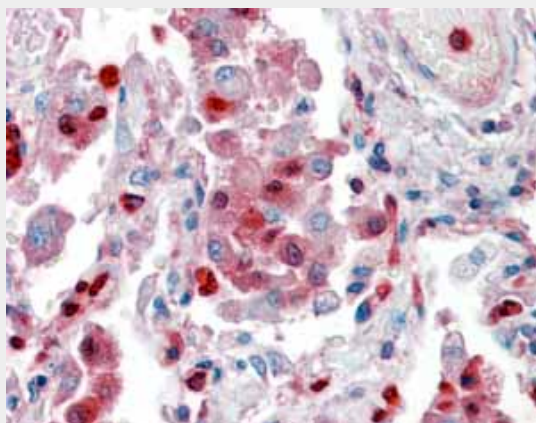
Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

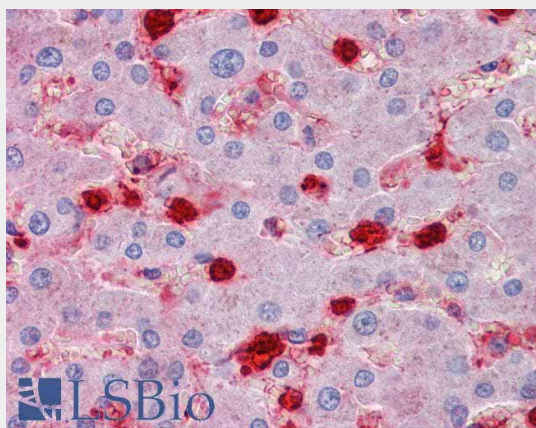
Goat Anti-S100A9 Antibody - Images



AF1951a (0.5 µg/ml) staining of Human Peripheral Mononucleocytes lysate (35 µg protein in RIPA buffer). Primary incubation was 1 hour. Detected by chemiluminescence.



AF1951a (2.5 µg/ml) staining of paraffin embedded Human Lung. Steamed antigen retrieval with citrate buffer pH 6, AP-staining.



AF1951a (2.5 µg/ml) staining of paraffin embedded Human Liver. Steamed antigen retrieval with citrate buffer pH 6, AP-staining.

Goat Anti-S100A9 Antibody - Background

The protein encoded by this gene is a member of the S100 family of proteins containing 2 EF-hand calcium-binding motifs. S100 proteins are localized in the cytoplasm and/or nucleus of a wide range of cells, and involved in the regulation of a number of cellular processes such as cell cycle progression and differentiation. S100 genes include at least 13 members which are located as a cluster on chromosome 1q21. This protein may function in the inhibition of casein kinase and altered expression of this protein is associated with the disease cystic fibrosis.

Goat Anti-S100A9 Antibody - References

MRP14 is elevated in the bronchoalveolar lavage fluid of fibrosing interstitial lung diseases. Korthagen NM, et al. Clin Exp Immunol, 2010 Aug. PMID 20550547.
New genetic associations detected in a host response study to hepatitis B vaccine. Davila S, et al. Genes Immun, 2010 Apr. PMID 20237496.
Serum calprotectin as a marker for disease activity and severity in adult-onset Still's disease. Jung SY, et al. J Rheumatol, 2010 May. PMID 20231196.
Evidence for diminished levels of epithelial psoriasin and calprotectin in chronic rhinosinusitis. Tieu DD, et al. J Allergy Clin Immunol, 2010 Mar. PMID 20226301.
iPLA2, a novel determinant in Ca²⁺- and phosphorylation-dependent S100A8/A9 regulated NOX2 activity. Schenten V, et al. Biochim Biophys Acta, 2010 Jul. PMID 20219570.