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S100A8 Antibody (Clone IMG48M7C7)

Mouse Monoclonal Antibody
Catalog # ABV11166

Specification

S100A8 Antibody (Clone IMG48M7C7) - Product Information

Application	**WB, IHC**
Primary Accession	P05109
Reactivity	**Human, Mouse**
Host	**Mouse**
Clonality	**Monoclonal**
Isotype	**Mouse IgG2b, kappa**
Calculated MW	**10835**

S100A8 Antibody (Clone IMG48M7C7) - Additional Information

Gene ID 6279

Positive Control	**Western blot: human spleen, HL60 and PC3 lysate, IHC: paraffin-embedded human spleen**
Application & Usage	**IHC (P): use antibody at 2 µg/ml, Western blot analysis: 0.5-5 µg/ml.**

Other Names
Calgranulin-A, Calprotectin L1L subunit, Cystic fibrosis antigen, CFAG, Leukocyte L1 complex light chain, Migration inhibitory factor-related protein 8, S100 calcium-binding protein A8, Urinary stone protein band A

Target/Specificity
S100A8

Antibody Form
Liquid

Appearance
Colorless liquid

Formulation
0.1 mg antibody in 0.2 ml PBS containing 0.05% BSA and 0.05% sodium azide.

Handling
The antibody solution should be gently mixed before use.

Reconstitution & Storage
-20 °C

Background Descriptions

Precautions

S100A8 Antibody (Clone IMG48M7C7) is for research use only and not for use in diagnostic or therapeutic procedures.

S100A8 Antibody (Clone IMG48M7C7) - Protein Information

Name S100A8 (HGNC:10498)

Synonyms CAGA, CFAG, MRP8

Function
S100A8 is a calcium- and zinc-binding protein which plays a prominent role in the regulation of inflammatory processes and immune response. It can induce neutrophil chemotaxis and adhesion. Predominantly found as calprotectin (S100A8/A9) which has a wide plethora of intra- and extracellular functions. 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. 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. The extracellular functions involve pro-inflammatory, antimicrobial, oxidant-scavenging and apoptosis-inducing activities. Its pro-inflammatory activity includes recruitment of leukocytes, promotion of cytokine and chemokine production, and regulation of leukocyte adhesion and migration. 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). Binding to TLR4 and AGER activates the MAP-kinase and NF-kappa-B signaling pathways resulting in the amplification of the pro-inflammatory cascade. Has antimicrobial activity towards bacteria and fungi and exerts its antimicrobial activity probably via chelation of Zn(2+) which is essential for microbial growth. 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. 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. Its role as an oxidant scavenger has a protective role in preventing exaggerated tissue damage by scavenging oxidants. Can act as a potent amplifier of inflammation in autoimmunity as well as in cancer development and tumor spread. The iNOS-S100A8/A9 transnitrosylase complex directs selective inflammatory stimulus- dependent S-nitrosylation of GAPDH and probably multiple targets such as ANXA5, EZR, MSN and VIM by recognizing a [IL]-x-C-x-x-[DE] motif; S100A8 seems to contribute to S-nitrosylation site selectivity.

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. Upon neutrophil activation or endothelial adhesion of monocytes, is secreted via a microtubule-mediated, alternative pathway

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

S100A8 Antibody (Clone IMG48M7C7) - Protocols

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

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

S100A8 Antibody (Clone IMG48M7C7) - Images

S100A8 Antibody (Clone IMG48M7C7) - Background

S100A8 is a low-molecular weight member of the S100 family of calcium-binding protein which promotes tumorigenesis. It promotes cell migration and invasion through p38 MAP dependent NF-kappaB activation leading to an increase of MMP2 and MMP12 in gastric cancer. The phagocyte-specific Ca2+-binding S100A8 protein has been proposed as an essential regulator of the plasma membrane NADPH oxidase activity. It is abundantly expressed in the cytosol of neutrophils and is able to form Ca2+-dependent heterocomplexes, with heterotetramers being a probable prerequisite for its biological activities in myeloid cells. S100A8 and S100A9 have been proposed as essential regulators that exert their role through interactions with NADPH oxidase subunits. S100A8 and S100A9 are generally considered proinflammatory. Whereas hypohalous acids generated by activated phagocytes promote novel modifications in murine S100A8 but modifications to human S100A8 are undefined and there is no evidence that these proteins scavenge oxidants in human disease. Oxidized S100A8 was prominent in lungs from patients with asthma and significantly elevated in sputum compared to controls. Results have broad implications for conditions under which hypohalous acid oxidants are generated by activated phagocytes. Identification in human disease of the novel S100A8 Cys derivatives typical of those generated in vitro strongly supports the notion that S100A8 contributes to antioxidant defense during oxidative stress.