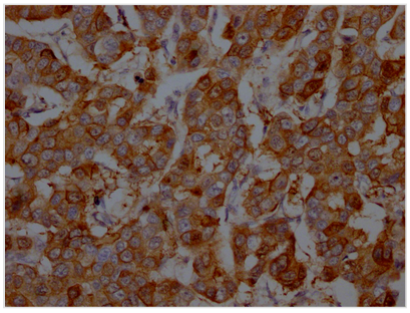
S100A9 Recombinant Monoclonal Antibody

Product Code	CSB-RA958800A0HU
Storage	Upon receipt, store at -20°C or -80°C. Avoid repeated freeze.
Uniprot No.	P06702
Immunogen	A synthesized peptide derived from human S100A9
Species Reactivity	Human
Tested Applications	ELISA, IHC; Recommended dilution: IHC:1:50-1:200
Relevance	S100A9 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, 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. 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 proinfammatory, antimicrobial, oxidant-scavenging and apoptosis-inducing activities. Its proinflammatory 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 proinflammatory 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. 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. 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.
Form	Liquid
Conjugate	Non-conjugated
Storage Buffer	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Purification Method	Affinity-chromatography
Isotype	Rabbit IgG
Clonality	Monoclonal
Product Type	Recombinant Antibody
Immunogen Species	Homo sapiens (Human)
Research Area	Cancer; Immunology; Signal transduction
Gene Names	S100A9
Clone No.	2E9

Image



IHC image of CSB-RA958800A0HU diluted at 1:100 and staining in paraffin-embedded human breast cancer performed on a Leica BondTM system. After dewaxing and hydration, antigen retrieval was mediated by high pressure in a citrate buffer (pH 6.0). Section was blocked with 10% normal goat serum 30min at RT. Then primary antibody (1% BSA) was incubated at 4? overnight. The primary is detected by a Goat anti-rabbit IgG polymer labeled by HRP and visualized using 0.05% DAB.

Description

The S100A9 recombinant monoclonal antibody is produced using recombinant DNA technology and is suitable for the detection of human S100A9 protein in ELISA and IHC applications. To produce this recombinant antibody, the gene responsible for the translation of the S100A9 recombinant monoclonal antibody is synthesized after sequencing the cDNA of the S100A9 antibody-producing hybridomas. These hybridomas are generated by fusing myeloma cells with B cells isolated from animals that have been immunized with a synthesized peptide derived from human S100A9. Once the gene is synthesized, it is cloned into a vector and transfected into cells for cultivation. After cultivation, the S100A9 recombinant monoclonal antibody is purified through affinity chromatography from the cell culture supernatant.

S100A9 is primarily produced by myeloid cells, such as neutrophils, monocytes, and macrophages, in response to inflammation or infection. S100A9 can interact with several target proteins, including TLRs and the receptor for advanced glycation end products (RAGE), which activate downstream signaling pathways, such as the NF-κB pathway, causing the production of pro-inflammatory cytokines and chemokines. It can form a heterodimer with S100A8 to form the complex calprotectin, which binds to bacterial and fungal pathogens, preventing

their growth and promoting their clearance by immune cells. S100A9 has also been implicated in various diseases, including cancer, inflammatory bowel disease, and arthritis.