

Recombinant Bovine S100A9 Protein (2-156 aa), His-SUMO-Myc-tagged

Cat. No. S100A9-2317B **Lot. No.** (See product label)

SPECIFICATION

Product Overview	Recombinant Bovine S100A9 Protein (2-156 aa) is produced by E. coli expression system. This protein is fused with a 6xHis-SUMO tag at the N-terminal and a Myc tag at the C-terminal. Research Area: Immunology. Protein Description: Full Length of Mature Protein.
Species	Bovine
Source	E.coli
ProteinLength	2-156 aa
Description	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.

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The extracellular functions involve proinflammatory, 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 Zn²⁺ 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. 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.

Form	Tris-based buffer,50% glycerol
Molecular Mass	34.5 kDa
AA Sequence	EDKMSQMESSIETIINIFHQYSVRLGHYDTLIQKEFKQLVQKELPNFLKKQKKNEAAIN EIMEDLDTNVDKQLSFEEFIMLVARLTVASHEEMHNTAPPGQGHRHGPYGYGKGGG GSCSGQGSPDQGSDDLGHSHGHGHSHGGHGHSHGGHGHSH
Purity	> 85% as determined by SDS-PAGE.

Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4 centigrade for up to one week.
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20 centigrade/-80 centigrade. The shelf life of lyophilized form is 12 months at -20 centigrade/-80 centigrade.
Concentration	A hardcopy of COA will be sent along with the products. Please refer to it for detailed information.

GENE INFORMATION

Gene Name	S100A9 S100 calcium binding protein A9 [Bos taurus (cattle)]
Official Symbol	S100A9
Synonyms	S100A9;
Gene ID	532569
mRNA Refseq	NM_001046328
Protein Refseq	NP_001039793
UniProt ID	P28783

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