



Recombinant Rat Protein S100-A9 (S100a9)

Product Code

CSB-EP020642RA

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 domain 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 domain 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 (By similarity).

Abbreviation

Recombinant Rat S100a9 protein

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°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.

Uniprot No.

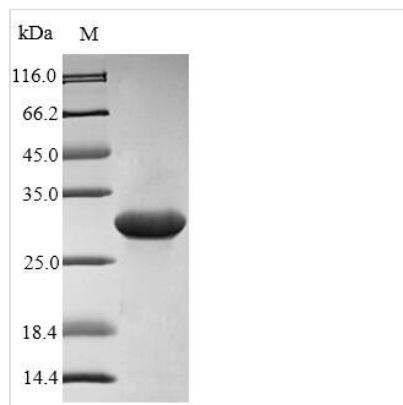
P50116

Alias

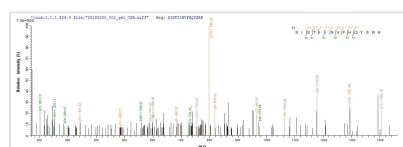
Calgranulin-B Migration inhibitory factor-related protein 14 Short name:MRP-14 Short name:p14 Myeloid-related protein 14 S100 calcium-binding protein A9



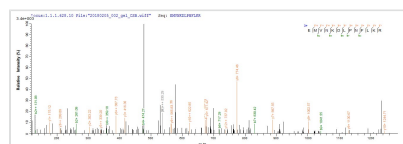
Product Type	Recombinant Protein
Immunogen Species	Rattus norvegicus (Rat)
Purity	≥ 90% as determined by SDS-PAGE.
Sequence	AAKTGSQLERSISTIINVFHQYSRKYGHPDTLNKAIEFKEMVNKDLPNFLKREKR NENLLRDIMEDLDTNQDNQLSFEECMMLMGKLIFACHEKLNENPRGHDHSH GKGCGK
Research Area	Immunology
Source	E.coli
Target Names	S100a9
Protein Names	Recommended name: Protein S100-A9 Alternative name(s): Calgranulin-B Migration inhibitory factor-related protein 14 Short name= MRP-14 Short name= p14 Myeloid-related protein 14 S100 calcium-binding protein A9
Expression Region	2-113aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-SUMO-tagged
Mol. Weight	29.0kDa
Protein Length	Full Length of Mature Protein

Image


(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.



Based on the SEQUEST from database of E.coli host and target protein, the LC-MS/MS Analysis result of CSB-EP020642RA could indicate that this peptide derived from E.coli-expressed Rattus norvegicus (Rat) S100a9.



Based on the SEQUEST from database of E.coli host and target protein, the LC-MS/MS Analysis result of CSB-EP020642RA could indicate that this peptide derived from E.coli-expressed Rattus norvegicus (Rat) S100a9.

Reconstitution

We recommend that this vial be briefly centrifuged prior to opening to bring the



contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL. We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.

Shelf Life

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°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.