



## Protein S100-A8, Recombinant, Rat, aa2-89, His-Tag (Protein S100a8)

### Catalog number

374882

### Supplier

United States Biological

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 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 Zn<sup>2+</sup> 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, ANXA5, EZR, MSN and VIM by recognizing a [IL]-x-C-x-x-[DE] motif; S100A8 seems to contribute to S-nitrosylation site selectivity.

### Source

Recombinant protein corresponding to aa2-89 from rat S100a8, fused to His-Tag at N-terminal, expressed in Yeast.

### Molecular Weight

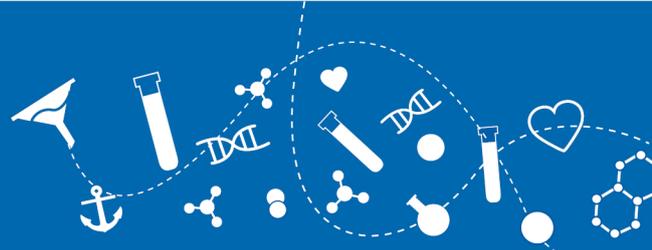
~12.1kD

### AA Sequence

ATELEKALSNVIEVYHNYSGIKGNHHALYRDDFRKMVTTECPQFVQNKNTESLFKELDVNSDNAINFEEFLVLVIRVG  
VAAHKDSHKE

### Storage and Stability

May be stored at 4°C for short-term only. Aliquot to avoid repeated freezing and thawing. Store at -20°C. For maximum recovery of product, centrifuge the original vial after thawing and prior to



removing the cap. Further dilutions can be made in assay buffer.

**Formulation**

Supplied as a liquid in Tris-HCl, pH 8.0, 1mM EDTA, 50% glycerol.

**Purity**

~85% (SDS-PAGE)

**Grade**

Purified

**Storage**

-20°C

**MW**

12.1

**Antigen Modification**

Recombinant, Yeast

**Reference**

1. Expression and cloning of migration inhibitory factor-related protein (MRP)8 and MRP14 in arthritis-susceptible rats. Imamichi T., Uchida I., Wahl S.M., McCartney-Francis N. *Biochem. Biophys. Res. Commun.* 194:819-825(1993).