

## Product datasheet for **AR39025PU-N**

### **S100A8 / Calgranulin-A / MRP8 (1-89, His-tag) Mouse Protein**

#### Product data:

|                                       |  |
|---------------------------------------|--|
| Product Type:                         | Recombinant Proteins   |
| Description:                          | S100A8 / Calgranulin-A / MRP8 (1-89, His-tag) mouse recombinant protein, 0.1 mg  |
| Species:                              | Mouse  |
| Expression Host:                      | E. coli  |
| Expression cDNA Clone or AA Sequence: | <u>MGSSHHHHHH SSSLVPRGSH</u> MPSELEKALS NLIDVYHNYS NIQGNHHALY KNDFKKMVTT ECPQFVQNIN IENLFRELDI NSDNAINFEE FLAMVIKGV ASHKDSHKE                                |
| Tag:                                  | His-tag  |
| Predicted MW:                         | 12.4 kDa   |
| Concentration:                        | lot specific   |
| Purity:                               | >95%   |
| Buffer:                               | Presentation State: Purified<br>State: Liquid purified protein<br>Buffer System: 20 mM Tris-HCl buffer (pH 8.0) containing 30% glycerol, 0.1M NaCl, 1 mM DTT |
| Preparation:                          | Liquid purified protein  |
| Protein Description:                  | Recombinant mouse S100A8 protein, fused to His-tag at N-terminus, was expressed in E.coli and purified by using conventional chromatography.                 |
| Storage:                              | Store undiluted at 2-8°C for up to two weeks or (in aliquots) at -20°C or -70°C for longer. Avoid repeated freezing and thawing.                             |
| Stability:                            | Shelf life: one year from despatch.  |
| RefSeq:                               | <u><a href="#">NP_038678</a></u>   |
| Locus ID:                             | 20201  |
| UniProt ID:                           | <u><a href="#">P27005</a></u> , <u><a href="#">Q53X15</a></u>  |
| Cytogenetics:                         | 3 39.9 cM  |
| Synonyms:                             | 60B8Ag; A1323541; B8Ag; Caga; CFAg; CP-10; MRP8; p8  |



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**Summary:**

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 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(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. 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 (By similarity). [UniProtKB/Swiss-Prot Function]

**Product images:**