

## S100A8 Protein, Human (C-His)

<b>Cat. No.:</b>	HY-P70531
<b>Synonyms:</b>	Protein S100-A8; S100A8; Calgranulin-A; Cystic fibrosis antigen; Leukocyte L1 complex light chain; MRP-8
<b>Species:</b>	Human
<b>Source:</b>	E. coli
<b>Accession:</b>	P05109 (M1-E93)
<b>Gene ID:</b>	6279
<b>Molecular Weight:</b>	Approximately 13.0 kDa

### PROPERTIES

<b>AA Sequence</b>	M L T E L E K A L N      S I I D V Y H K Y S      L I K G N F H A V Y      R D D L K K L L E T E C P Q Y I R K K G      A D V W F K E L D I      N T D G A V N F Q E      F L I L V I K M G V A A H K K S H E E S      H K E
<b>Appearance</b>	Solution.
<b>Formulation</b>	Supplied as a 0.2 µm filtered solution of 20 mM HEPES, 150 mM NaCl, 2.5 mM EDTA, 10% Glycerol, pH 7.0.
<b>Endotoxin Level</b>	<1 EU/µg, determined by LAL method.
<b>Reconstitution</b>	N/A
<b>Storage &amp; Stability</b>	Stored at -80°C for 1 year from date of receipt. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
<b>Shipping</b>	Shipping with dry ice.

### DESCRIPTION

<b>Background</b>	<p>The S100A8, consisting of calcium- and zinc-binding S100A8, plays a crucial role in regulating inflammatory processes and immune responses. Often found as calprotectin (S100A8/A9), it serves diverse intracellular functions, including facilitating leukocyte arachidonic acid trafficking and metabolism, modulating the tubulin-dependent cytoskeleton during phagocyte migration, and activating the neutrophilic NADPH-oxidase. In particular, it activates NADPH-oxidase by aiding in the assembly of the enzyme complex at the cell membrane, transferring arachidonic acid, and directly binding to NCF2/P67PHOX. Extracellularly, it exhibits pro-inflammatory, antimicrobial, oxidant-scavenging, and apoptosis-inducing activities. Acting as an alarmin or danger-associated molecular pattern (DAMP) molecule, S100A8 stimulates innate immune cells through binding to pattern recognition receptors such as Toll-like receptor 4 (TLR4) and receptor for advanced glycation endproducts (AGER), activating MAP-kinase and NF-kappa-B signaling pathways and amplifying the pro-inflammatory cascade. With antimicrobial activity against bacteria and fungi, it likely exerts this effect through Zn(2+)</p>
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chelation essential for microbial growth. Additionally, S100A8/A9 induces cell death via autophagy and apoptosis, regulates neutrophil number and apoptosis, and acts as an oxidant scavenger to prevent tissue damage. Its role as an amplifier of inflammation in autoimmunity and cancer development is notable, and in microbial infection, such as by SARS-CoV-2, it may induce expansion of aberrant immature neutrophils in a TLR4-dependent manner.

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**Caution: Product has not been fully validated for medical applications. For research use only.**

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