

S100A8 Protein, Human (sf9, His)

Cat. No.:	HY-P76586
Synonyms:	Protein S100-A8; S100A8; Calgranulin-A; Cystic fibrosis antigen; Leukocyte L1 complex light chain; MRP-8
Species:	Human
Source:	Sf9 insect cells
Accession:	P05109 (M1-E93)
Gene ID:	6279
Molecular Weight:	Approximately 14.6 kDa

PROPERTIES

Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μ m filtered solution of 20 mM Tris, 500 mM NaCl, 10% Glycerol, pH 8.0. Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween 80 are added as protectants before lyophilization.
Endotoxin Level	<1 EU/ μ g, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 μ g/mL in ddH ₂ O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	<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+) 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.</p>
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Caution: Product has not been fully validated for medical applications. For research use only.

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