

S100A9 Protein, Canine (His)

Cat. No.:	HY-P77830
Synonyms:	S100-A9; Calgranulin-B; Calprotectin L1H subunit; MRP-14; p14; CAGB; MRP14
Species:	Canine
Source:	E. coli
Accession:	XP_038528057 (M1-H130)
Gene ID:	490463
Molecular Weight:	Approximately 15.90 kDa

PROPERTIES

Appearance	Solution.
Formulation	Supplied as a 0.22 µm filtered solution of PBS, 1 mM DTT, 10% Glycerol, pH 7.4.
Endotoxin Level	<1 EU/µg, determined by LAL method.
Reconstitution	N/A.
Storage & Stability	Stored at -80°C for 1 year. 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.
Shipping	Shipping with dry ice.

DESCRIPTION

Background

S100A9, a calcium- and zinc-binding protein, plays a pivotal role in regulating inflammatory processes and immune responses. Its diverse functions include inducing neutrophil chemotaxis, adhesion, and enhancing the bactericidal activity of neutrophils through SYK, PI3K/AKT, and ERK1/2 activation, as well as promoting phagocytosis. Often found in the form of calprotectin (S100A8/A9), it serves intra- and extracellular roles, including facilitating leukocyte arachidonic acid trafficking and NADPH-oxidase activation intracellularly. Extracellularly, it exhibits pro-inflammatory, antimicrobial, oxidant-scavenging, and apoptosis-inducing activities, recruiting leukocytes, promoting cytokine and chemokine production, and regulating leukocyte adhesion and migration. Functioning as an alarmin or DAMP molecule, S100A9 stimulates innate immune cells via Toll-like receptor 4 (TLR4) and receptor for advanced glycation endproducts (AGER), activating MAP-kinase and NF-kappa-B signaling pathways. With antimicrobial activity against bacteria and fungi, it likely acts by chelating Zn(2+), essential for microbial growth. S100A9 can induce cell death through autophagy and apoptosis via mitochondrial-lysosomal cross-talk involving BNIP3 and regulates neutrophil number and apoptosis, acting as an anti-apoptotic factor. Its role as an oxidant scavenger protects against tissue damage by scavenging oxidants. Notably, S100A9 can act as a potent amplifier of inflammation in autoimmunity, cancer development, and tumor spread. It also exhibits transnitrosylase activity, contributing to S-nitrosylation of various targets, and forms complexes with other proteins, such as the iNOS-S100A8/A9 transnitrosylase complex, indicating its multifaceted involvement in immune regulation and inflammatory responses.

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

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