

Active Recombinant Mouse S100a8 Protein

Cat. No. S100a8-01M **Lot. No.** (See product label)

SPECIFICATION

Product Overview	Recombinant Mouse S100A8 (Pro2-Glu89)/S100A9 (Ala2-Lys113) Heterodimer Protein without tag was expressed in E. coli.
Species	Mouse
Source	E.coli
ProteinLength	2-89;2-113 a.a.
Description	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

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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 Zn²⁺ 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.

Form	Non-covalent heterodimer
Bio-activity	Measured by its ability to induce IL-6 secretion by A375 human melanoma cells. The ED50 for this effect is 1.5-6 µg/mL.
Molecular Mass	10 kDa (S100A8), 13 kDa (S100A9)
N-terminal Sequence Analysis	Pro2 (S100A8), Ala2 (S100A9)
Endotoxin	< 0.10 EU/µg of the protein by the LAL method.
Purity	> 95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.

Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. 12 months from date of receipt, -20 to -70 centigrade as supplied. 1 month, 2 to 8 centigrade under sterile conditions after reconstitution. 3 months, -20 to -70 centigrade under sterile conditions after reconstitution.
Storage Buffer	Lyophilized from a 0.2 µm filtered solution in PBS and DTT.
Reconstitution	Reconstitute at 500 µg/mL in PBS.
Shipping	The product is shipped at ambient temperature.

GENE INFORMATION

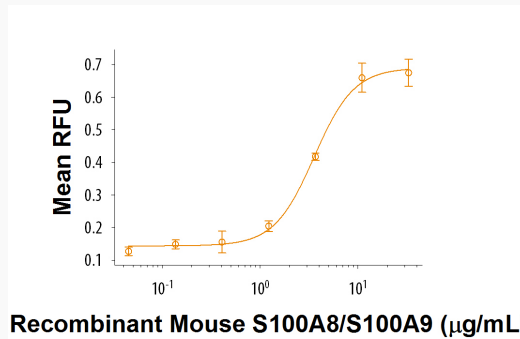
Gene Name	S100a8 S100 calcium binding protein A8 (calgranulin A) [Mus musculus (house mouse)]
Official Symbol	S100a8
Synonyms	S100a8; S100 calcium binding protein A8 (calgranulin A); p; Ca; MR; p8; B8A; CFA; B8Ag; CFAg; CP-1; Caga; MRP8; 60B8A; CP-10; 60B8Ag; AI323541; protein S100-A8; MRP-8; S100 calcium-binding protein A8; calgranulin-A; chemotactic S100 protein; chemotactic cytokine CP-10; leukocyte L1 complex light chain; migration inhibitory factor-related protein 8; pro-inflammatory S100 cytokine
Gene ID	20201
mRNA Refseq	NM_013650
Protein Refseq	NP_038678
UniProt ID	P27005

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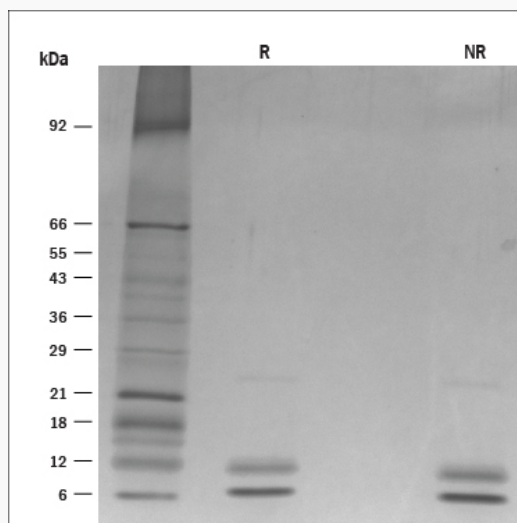
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Bioactivity



Recombinant Mouse S100A8/S100A9 induces IL-6 secretion by A375 human melanoma cells. The ED50 for this effect is 1.5-6 μg/mL.

SDS-PAGE



1 μg/lane of Recombinant Mouse S100A8/S100A9 was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by silver staining, showing R bands at 6.3, 10.8 kDa and NR band at 6, 9.6 kDa.