Recombinant Human S100A8

Catalog Number: 9876-S8

DESCRIPTION

Source	*E. coli*-derived human S100A8 protein Met1-Glu93 Accession # P05109
N-terminal Sequence Analysis	Met1
Predicted Molecular Mass	11 kDa

SPECIFICATIONS

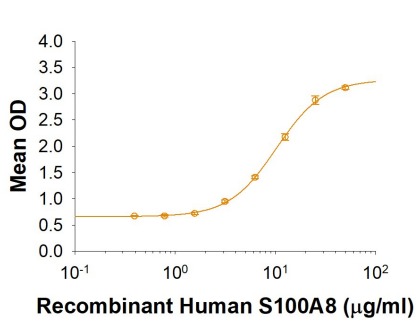
SDS-PAGE	9 kDa, reducing conditions
Activity	Measured by its ability to induce CXCL1/KC secretion by C3H10T1/2 mouse embryonic fibroblast cells. The ED_{50} for this effect is 4-20 µg/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>90%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in Tris and TCEP with Trehalose. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 150 µg/mL in water.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	• 12 months from date of receipt, ≤ -20 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, ≤ -20 °C under sterile conditions after reconstitution.

DATA

Bioactivity



Recombinant Human S100A8 (Catalog # 9876-S8) induces CXCL1/KC secretion in C3H10T1/2 mouse embryonic fibroblast cells. The ED_{50} for this effect is 4-20 µg/mL.

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BACKGROUND

S100A8 (also known as MRP8 and calgranulin A) is a 10 kDa member of the S100 family, EF-hand superfamily of Ca^{2+} binding proteins (1, 2). It is produced by neutrophils and monocytes, and forms Ca^{2+} dependent heterodimer/ heterotetramer complexes (termed calprotectin) with S100A9 in addition to forming homodimeric complexes. Like S100A9, S100A8 is up-regulated in neutrophils and monocytes at sites of inflammation (e.g. psoriasis, rheumatoid arthritis, cardiac ischemia) and is present at elevated concentrations in rheumatoid arthritis synovial fluid (3-5). It functions both intracellularly and extracellularly, where it binds to RAGE and CD36. In addition, S100A8 was shown to activate lung alveolar epithelial cells, osteoclasts, and chondrocytes in TLR4-dependent manner, inducing proinflammatory cytokines and chemokines including, IL-6, IL-8, KC, and MCP-1 (6-8). In osteoarthritic chondrocytes, S100A8 and A9 also promoted expression of matrix metalloproteinases (MMP-1, -3, -9, and -13) potentially affecting to cartilage breakdown (8). Human S100A8 is 93 amino acids (aa) in length. It contains two EF-hand motifs (aa 12-47 and aa 46-81) and one high-affinity Ca^{2+} binding site (aa 59-70). There may be one splice form that shows a 15 aa substitution for the C-terminal 14 amino acids. Although mouse S100A8 is cleaved by MMP-2 after Asn21, it is unclear if human S100A8 is susceptible to the same cleavage. Full-length human S100A8 is 57% and 61% identical to mouse and rat S100A8, respectively (9).

References:

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