

PRODUCT INFORMATION



S100A1 (human, recombinant)

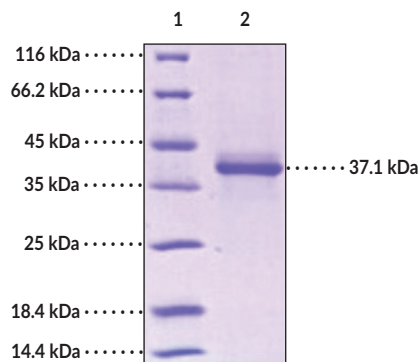
Item No. 31844

Overview and Properties

Synonyms:	S100 α , S100 Calcium-binding Protein A1, S100 Protein α Chain, S100 Protein Subunit α
Source:	Active recombinant C-terminal human IgG1 Fc-tagged S100A1 expressed in HEK293 cells
Amino Acids:	2-94
Uniprot No.:	P23297
Molecular Weight:	37.1 kDa
Storage:	-80°C (as supplied)
Stability:	≥ 1 year
Purity:	$\geq 95\%$ estimated by SDS-PAGE
Supplied in:	Lyophilized from sterile 50 mM Tris, pH 7.5, with 100 mM glycine and 10 mM sodium chloride
Endotoxin Testing:	< 1.0 EU/ μ g, determined by the LAL endotoxin assay
Bioactivity:	See figure for details

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



Lane 1: MW Markers
Lane 2: S100A1

SDS-PAGE Analysis of S100A1. This protein has a calculated molecular weight of 37.1 kDa. It has an apparent molecular weight of approximately 40 kDa by SDS-PAGE under reducing conditions due to glycosylation.

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
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Description

S100 calcium-binding protein A1 (S100A1) is a calcium-binding protein that exists as a homodimer, with each subunit containing two EF-hand calcium-binding domains connected by a hinge region and a C-terminal extension.¹ It is expressed primarily in ventricular cardiomyocytes but also in skeletal muscle and vascular endothelial cells.^{1,2} In cardiomyocytes it is localized to the sarcoplasmic reticulum, mitochondria, and myofilaments where it regulates calcium homeostasis, contractile machinery, and cellular energy metabolism. S100A1 is localized to the cytoplasm with perinuclear enrichment in micro- and macrovascular endothelial cells and regulates responses to adrenergic receptor activation, vessel relaxation, and angiogenesis.^{2,3} Overexpression of S100A1 is protective against the development of heart failure in post-ischemic isolated mouse cardiomyocytes and reduces mortality in a mouse model of myocardial infarction.³ S100A1 knockdown impairs post-ischemic angiogenesis and neovascularization in mice.² S100A1 levels are inversely correlated with disease severity in patients with heart failure. Cayman's S100A1 (human, recombinant) protein can be used for binding assay applications. This protein is a disulfide-linked homodimer. The reduced monomer, composed of S100A1 (amino acids 2-94) fused to human IgG1 Fc at its C-terminus, consists of 330 amino acids and has a calculated molecular weight of 37.1 kDa. As a result of glycosylation, the monomer migrates at 40 kDa by SDS-PAGE under reducing conditions.

References

1. Völkers, M., Rohde, D., Goodman, C., *et al.* S100A1: A regulator of striated muscle sarcoplasmic reticulum Ca²⁺ handling, sarcomeric, and mitochondrial function. *J. Biomed. Biotechnol.* **178614**, (2010).
2. Rohde, D., Busch, M., Volkert, A., *et al.* Cardiomyocytes, endothelial cells and cardiac fibroblasts: S100A1's triple action in cardiovascular pathophysiology. *Future Cardiol.* **11(3)**, 309-321 (2015).
3. Duarte-Costa, S., Castro-Ferreira, R., Neves, J.S., *et al.* S100A1: A major player in cardiovascular performance. *Physiol. Res.* **63(6)**, 669-681 (2014).