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HSP60 Protein

Active Human Recombinant HSP60 Protein
Catalog No. SPR-104



Discovery through partnership | Excellence through quality

Overview

Product Name

HSP60 Protein

Description

Active Human Recombinant HSP60 Protein

Applications

WB, SDS-PAGE, ATPase Activity Assay, Functional Assay, ELISA

Concentration

0.3 mg/ml

Conjugates

His tag

Nature

Recombinant

Species

Human

Expression System

E. coli

Biological Activity

ATPase active

Properties

Storage Buffer

20mM Phosphate Buffer, 150mM NaCl, 10% glycerol

Storage Temperature

-20°C

Shipping Temperature

Blue Ice or 4°C

Purification

Affinity Purified

Specificity

~60 kDa

Cite This Product

Human Recombinant HSP60 Protein (StressMarq Biosciences Inc., Victoria BC CANADA, Catalog # SPR-104)

Certificate Of Analysis

This product has been certified >90% pure using SDS-PAGE analysis. The protein has ATPase activity at the time of manufacture of 3.6 μ M phosphate liberated/hr/ μ g protein in a 200 μ l reaction at 37°C (pH7.5) in the presence of 20ul of 1mM ATP using a Malachite Green assay.

Biological Description

Alternative Names

60kDa chaperonin Protein, cb863 Protein, CPN60 Protein, GROEL Protein, GroEL Homolog Protein, HLD4 Protein, HSP65 Protein, HSPD1 Protein, HuCHA60 Protein, SPG13 Protein

Research Areas

Cancer, Heat Shock

Cellular Localization

Mitochondrion Matrix

Accession Number

BC003030

Gene ID

3329

Swiss Prot

P10809

Scientific Background

In both prokaryotic and eukaryotic cells, the misfolding and aggregation of proteins during biogenesis and under conditions of cellular stress are prevented by molecular chaperones. Members of the HSP60 family of heat shock proteins are some of the best characterized chaperones. HSP60, also known as Cpn60 or GroEL, is an abundant protein synthesized constitutively in the cell that is induced to a higher concentration after brief cell shock. It is present in many species and exhibits a remarkable sequence homology among various counterparts in bacteria, plants, and mammals with more than half of the residues identical between bacterial and mammalian HSP60 (1-3). Whereas mammalian HSP60 is localized within the mitochondria, plant HSP60, or otherwise known as Rubisco-binding protein, is located in plant chloroplasts. It has been indicated that these proteins carry out a very important biological function due to the fact that HSP60 is present in so many different species. The common characteristics of the HSP60s from the divergent species are i) high abundance, ii) induction with environmental stress such as heat shock, iii) homooligomeric structures of either 7 or 14 subunits which reversibly dissociate in the presence of Mg²⁺ and ATP, iv) ATPase activity and v) a role in folding and assembly of oligomeric protein structures (4). These similarities are supported by recent studies where the single-ring human mitochondrial homolog, HSP60 with its co-chaperonin, HSP10 were expressed in a E. coli strain, engineered so that the groE operon is under strict regulatory control. This study has demonstrated that expression of HSP60-HSP10 was able to carry out all essential in vivo functions of GroEL and its co-chaperonin, GroES (5). Another important function of HSP60 and HSP10 is their protective functions against infection and cellular stress. HSP60 has however been linked to a number of autoimmune diseases, as well as Alzheimer's, coronary artery diseases, MS, and diabetes (6-9).

References

1. Hartl F.U. (1996) Nature. 381: 571-579.
2. Bukau B. and Horwich A.L. (1998) Cell. 92: 351-366.
3. Hartl F.U. and Hayer-Hartl M. (2002) Science. 295: 1852-1858.
4. Jindal S., et al. (1989) Molecular and Cellular Biol. 9: 2279-2283.
5. La Verda D., et al (1999) Infect Dis. Obstet. Gynecol. 7: 64-71.
6. Itoh H., et al. (2002) Eur. J. Biochem. 269: 5931-5938.
7. Gupta S. and Knowlton A.A. J. Cell Mol Med. 9: 51-58.
8. Deocaris C.C. et al. (2006) Cell Stress Chaperones. 11: 116-128.

Product Images



SDS-PAGE of 60kDa Hsp60 protein (SPR-104).

Product Citations (3)

ELISA

Association of autoantibodies to heat-shock protein 60 with arterial vascular events in patients with antiphospholipid antibodies.

Dieude, M. et al. (2011) Arthritis Rheum. 63 (8): 2416-2424.

PubMed ID: 21506099 **Applications:** ELISA

Other Citations

Monocyte cytokine synthesis in response to extracellular cell stress proteins suggests these proteins exhibit network behaviour.

Kaiser, F., Steptoe, A., Thompson, S. and Henderson, B. (2014) Cell Stress Chaperones. 19(1):135-44.

PubMed ID: 23775284 **Applications:** Functional Assay

Detection of autoantibodies against heat shock proteins and collapsin response mediator proteins in autoimmune retinopathy.

Adamus, G. et. al. (2013) BMC Ophthalmol. 0.575

PubMed ID: 24066722 **Applications:** Western Blot Control

Reviews

Based on validation through cited publications.



StressMarq Biosciences

June 15, 2016: