

AR03019PU-L**Human HSP60 (active) - Aff - Purified****Alternate names:**

60 kDa chaperonin, 60 kDa heat shock protein mitochondrial, CPN60, Chaperonin 60, GROEL, GroEL Homolog, HSP-60, HSPD1, Heat shock protein 60, HuCHA60, Mitochondrial matrix protein P1, P60 lymphocyte protein

Quantity:

2x0.1 mg

Concentration:

0.47 mg/ml.

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) homo-oligomeric 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 cochaperonin, 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).

Uniprot ID:

[P10809](#)

NCBI:

[NP_002147.2](#)

GeneID:

[3329](#)

Species:

Human

Source:

E. coli

Format:

State: Liquid Affinity purified protein.

Purity: >90% pure as determined by SDS-PAGE analysis.

Buffer System: Na-Phosphate, pH 7.5 (20 mM), 150 mM NaCl, 10% Glycerol, 200 mM Imidazole

Applications:	ATPase Assay Western Blot Control. Binding Assays. ELISA reference standard. Other applications not tested. Optimal dilutions are dependent on conditions and should be determined by the user.
Description:	Recombinant Human Hsp60 Protein with ATPase activity, his-tagged Molecular weight: ~60 kD
Storage:	Store (in aliquots) at -20°C. Avoid repeated freezing and thawing. Shelf life: One year from despatch.
General Readings:	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 Biology 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. 9. Lai, H.C. et al. (2007) Am. J. Physiol. Endocrinol. Metab. 292: E292-E297.