Hsp60 Active Recombinant Protein

Product Specifications

Catalog Number:	NSP-540
Product Description:	Recombinant Human Hsp60 Protein
Format:	DPBS
Application:	WB Control: 50 ng of protein recommended (Colorimetric) ATPase Activity Assay: Positive *The optimal dilution for a specific application must be determined by the investigator.* *Other applications not tested*
Purity:	>90% pure as determined by SDS-PAGE and Western blot analyses
Molecular Weight:	~ 60 kDa observed
Concentration:	See product label
Storage:	Store at -70°C *Shipping conditions may differ from the recommended storage temperature*
Related Products:	
SPA-806	Hsp60 Monoclonal Antibody (LK-1)
LYC-HL101	HeLa Cell Lysate (Heat Shocked)
SAB-100	Goat anti-Mouse IgG(Fab) Polyclonal Antibody, HRP Conjugate
EKS-600	Hsp60 ELISA Kit
ESP-540	Hsp60 Active Recombinant Protein - Low Endotoxin
SPA-828	Hsp60 Polyclonal Antibody
SPA-807AP	Hsp60 Antibody:AP Conjugate

Background:

The human Hsp60 is a member of a highly conserved family which includes molecular chaperones from several species including plant Hsp60 (known as Rubisco binding protein), and bacterial GroEL, a major antigen of mycobacteria. In eukaryotes, Hsp60 is localized in the mitochondrial matrix while plant Hsp60 is localized in the chloroplast. Mitochondria, chloroplasts and bacteria have a common ancestry (>1billion years). This fact combined with the high degree of homology between the divergent Hsp60s would indicate that these proteins carry out a primitive but important function which is conserved in divergent species. The common characteristics of the Hsp60s include i) high abundance, ii) induction upon environmental stress such as heat shock, iii) homo-oligomeric structures of either 7 or 14 subunits which reversibly dissociate in the presence of Mg^{2+} and ATP, iv) ATPase activity and v) a role in folding and assembly of oligomeric protein structures[1]. These similarities are supported by recent studies where the single-ring human mitochondrial homolog, Hsp60 with its co-chaperonin, Hsp10 were expressed in an *E. coli* strain, engineered so that the groE operon is under strict regulatory control. This study has demonstrated that expressed Hsp60-Hsp10 was able to carry out all essential *in vivo* functions of GroEL and its co-chaperonin, GroES [2]. Consistent with their function as chaperones, Hsp60 and Hsp10 have been suggested to act as docking molecules with a passive role in the maturation of caspase processing. Recombinant Hsp60 and Hsp10 have been shown to accelerate the activation of procaspase-3 by cytochrome c and dATP in an ATP-dependent manner[3]. Hsps are intracellular proteins which are thought to serve protective functions against infection and cellular stress, however several recent studies indicate that members of the Hsp60 family are linked to a number of autoimmune diseases, artherosclerosis and chlamydial disease.

References:

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3. Samali, A., Cia, J.Y., Zhivotovsky, B., Jones, D.P., and Orrenius, S. (1999) *EMBO J*. **18**: 2040-2048.
4. Van Roon, J.A-G., van Eden, W., van Roy, J.L.A.M., Lafeber, F.J.P.G. and Bijisma, J.W.J. (1997) *J Clin. Invest* **100**: 459-463.
5. La Verda, D., Kalayoglu, M.V. and Byrne, G.I. (1999) *Infect Dis. Obstet. Gynecol*. **7**: 64-71.

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