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HSP70 Protein

Active Human Recombinant HSP70 Protein
Catalog No. SPR-103



Discovery through partnership | Excellence through quality

Overview

Product Name

HSP70 Protein

Description

Active Human Recombinant HSP70 Protein

Applications

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

Concentration

0.47 mg/ml

Conjugates

His tag

Nature

Recombinant

Species

Human

Expression System

E. coli

Amino Acid Sequence

MKLSLVAAMLLLLSAARAEEDKKEDVGTWVGIDLGTTYSCVGV FKNRVEIANDQGNRITPSYVAFTPEGERLIGDAAKNQLTSNPENTVFDAKRLIGRT
WNDPSVQQDIKFLPFKWEKTKPYIQVDIGGGQTKTFAPEEISAMVLTKMKETAAY LGKKVTHAVVTPAYFNDAQRQATKDAGTIAGL

Biological Activity

ATPase active

Properties

Storage Buffer

Na-Phosphate, pH7.5 (20mM), 150mM NaCl, 10% glycerol, 200mM Imidazole

Storage Temperature

-20°C

Shipping Temperature

Blue Ice or 4°C

Purification

Affinity Purified

Specificity

~70 kDa

Cite This Product

Human Recombinant HSP70 Protein (StressMarq Biosciences Inc., Victoria BC CANADA, Catalog # SPR-103)

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 3.3 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

HSP70 1 Protein, HSP70 2 Protein, HSP70.1 Protein, HSP72 Protein, HSP73 Protein, HSPA1 Protein, HSPA1A Protein, HSPA1B Protein

Research Areas

Cancer, Heat Shock

Cellular Localization

Cytoplasm

Accession Number

NM_005345

Gene ID

3303

Swiss Prot

P08107

Scientific Background

HSP70 genes encode abundant heat-inducible 70-kDa HSPs (HSP70s). In most eukaryotes HSP70 genes exist as part of a multigene family. They are found in most cellular compartments of eukaryotes including nuclei, mitochondria, chloroplasts, the endoplasmic reticulum and the cytosol, as well as in bacteria. The genes show a high degree of conservation, having at least 50% identity (2). The N-terminal two thirds of HSP70s are more conserved than the C-terminal third. HSP70 binds ATP with high affinity and possesses a weak ATPase activity which can be stimulated by binding to unfolded proteins and synthetic peptides (3). When HSC70 (constitutively expressed) present in mammalian cells was truncated, ATP binding activity was found to reside in an N-terminal fragment of 44kDa which lacked peptide binding capacity. Polypeptide binding ability therefore resided within the C-terminal half (4). The structure of this ATP binding domain displays multiple features of nucleotide binding proteins (5). All HSP70s, regardless of location, bind proteins, particularly unfolded ones. The molecular chaperones of the HSP70 family recognize and bind to nascent polypeptide chains as well as partially folded intermediates of proteins preventing their aggregation and misfolding. The binding of ATP triggers a critical conformational change leading to the release of the bound substrate protein (6). The universal ability of HSP70s to undergo cycles of binding to and release from hydrophobic stretches of partially unfolded proteins determines their role in a great variety of vital intracellular functions such as protein synthesis, protein folding and oligomerization and protein transport. Looking for more information on HSP70? Visit our new HSP70 Scientific Resource Guide at <http://www.HSP70.com>.

References

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2. Boorstein, W. R., Ziegelhoffer, T. & Craig, E. A. (1993) J. Mol. Evol. 38(1): 1-17.
3. Rothman J. (1989) Cell. 59: 591 -601.
4. DeLuca-Flaherty et al. (1990) Cell. 62: 875-887.

5. Bork P., Sander C. & Valencia A. (1992) Proc. Natl Acad. Sci. USA. 89: 7290-7294.
6. Fink A.L. (1999) Physiol. Rev. 79: 425-449.
7. Smith D.F., et al., (1993) Mol. Cell. Biol. 13(2): 869-876.
8. Prapapanich V., et al., (1996) Mol. Cell. Biol. 16(11): 6200-6207.
9. Fernandez-Funez et al., (2000) Nature. 408(6808): 101-106.

Product Images



SDS-PAGE of 70kDa Hsp70 protein (SPR-103).

Product Citations (6)

Immunoprecipitation

In Vivo Generation of Neurotoxic Prion Protein: Role for Hsp70 in Accumulation of Misfolded Isoforms.

Fernandez-Funez, P. et al. (2009) PLoS Genet. 5(6): e1000507.

PubMed ID: 19503596 **Applications:** Immunoprecipitation

ELISA

Measuring Hsp72 (HSPA1A) by Indirect Sandwich ELISA.

Ireland, H.E. and Williams, J.H.H. (2011) Methods Mol Biol. 787, 145-153.

PubMed ID: 21898234 **Applications:** ELISA

The Danger Signal S100B Integrates Pathogen and DangerSensing Pathways to Restrain Inflammation.

Sorci, G. et al. (2011) PLoS Pathog. 7(3): e1001315.

PubMed ID: 21423669 **Applications:** ELISA

Other Citations

Hsp70 Promotes Epithelial Sodium Channel Functional Expression by Increasing Its Association with Coat Complex II and Its Exit from Endoplasmic Reticulum.

Chanoux, R.A. et al. (2012) J Biol Chem. 287.19255-19265.

PubMed ID: 22496374 **Applications:** Western Blot Control

Identification of the major allergen of Malassezia globosa relevant for atopic dermatitis.

Ishibashi, Y., Kato, H., Asahi, Y., Suqita, T. and Nishikawa, A. (2009) J Dermatol Sci. 55 (3): 185-192.

PubMed ID: 19540092 **Applications:** Western Blot Inhibitor

Identification of Phosphorylation-Dependent Binding Partners of Aquaporin-2 Using Protein Mass Spectrometry.

Zwang, N.A. et al. (2009) J Proteome Res. 8 (3): 1540-1554.

PubMed ID: 19209902 **Applications:** Western Blot Control

Reviews

Based on validation through cited publications.



StressMarq Biosciences
June 15, 2016: