HSPA8/HSC70 Protein, Human (N-His)

Cat. No.:	HY-P73915A
Synonyms:	Heat shock cognate 71 kDa protein; LAP-1; HSPA8; HSC70
Species:	Human
Source:	E. coli
Accession:	P11142-1 (M1-D646)
Gene ID:	3312
Molecular Weight:	Approximately 65 kDa

PROPERTIES

AA Sequence	MSKGPAVGIDLGTTYSCVGVFQHGKVEIIANDQGNRTTPS YVAFTDTERLIGDAAKNQVAMNPTNTVFDAKRLIGRRFDD AVVQSDMKHWPFMVVNDAGRPKVQVEYKGETKSFYPEEVS SMVLTKMKEIAEAYLGKTVTNAVVTVPAYFNDSQRQATKD AGTIAGLNVLRIINEPTAAAIAYGLDKKVGAERNVLIFDL GGGTFDVSILTIEDGIFEVKSTAGDTHLGGEDFDNRMVNH FIAEFKRKHKKDISENKRAVRRLRTACERAKRTLSSSTQA SIEIDSLYEGIDFYTSITRARFEELNADLFRGTLDPVEKA LRDAKLDKSQIHDIVLVGGSTRIPKIQKLLQDFFNGKELN KSINPDEAVAYGAAVQAAILSGDKSENVQDLLLLDVTPLS LGIETAGGVMTVLIKRNTTIPTKQTQTFTTYSDNQPGVLI QVYEGERAMTKDNNLLGKFELTGIPPAPRGVPQIEVTFDI DANGILNVSAVDKSTGKENKITITNDKGRLSKEDIERMVQ EAEKYKAEDEKQRDKVSSKNSLESYAFNMKATVEDEKLQG KINDEDKQKILDKCNEIINWLDKNQTAEKEEFEHQQKELE KVCNPIITKLYQSAGGMPGGMPGGFPGGGAPPSGGASSGP TIEEVD
Biological Activity	HSC70 has ATPase activity at the time of manufacture of 13.173 μM phosphate liberated/h/μg protein in a 200μL reaction at 37°C in the presence of 10 μL of 4 mM ATP using a Malachite Green assay.
Appearance	Lyophilized powder
Formulation	Lyophilized from a 0.2 μm filtered solution of 20 mM PB, 150 mM NaCl, pH 7.4.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is

	recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	HSPA8/HSC70, a molecular chaperone, is intricately involved in diverse cellular processes, including proteome protection from stress, facilitation of polypeptide folding and transport, chaperone-mediated autophagy, activation of misfolded protein proteolysis, and modulation of protein complex formation and dissociation. Central to the protein quality control system, it ensures correct protein folding, refolding of misfolded proteins, and regulates protein targeting for subsequent degradation. This function is orchestrated through cycles of ATP binding, ATP hydrolysis, and ADP release, facilitated by co-chaperones. The nucleotide-bound state of HSP70 regulates its affinity for polypeptides, with ATP-bound form having low substrate affinity, and a conformational change upon ATP hydrolysis increasing the affinity for substrates. Co-chaperones, including J-domain co-chaperones (HSP40s), nucleotide exchange factors (NEFs) such as BAG1/2/3, and TPR domain chaperones like HOPX and STUB1, play specific roles in modulating HSP70 activity. Beyond its fundamental role in mitochondrial import, HSPA8/HSC70 also acts as a repressor of transcriptional activation, participates in the spliceosome assembly, and plays a role in selective protein degradation processes, including chaperone-mediated autophagy and ER-associated degradation. Additionally, it interacts with the VGF-derived peptide TLQP-21, indicating its involvement in diverse cellular pathways.

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