HSC70 Protein

PRODUCT OVERVIEW

Product Name	HSC70, Protein
Full Product Name	HSC70 protein
Product Gene Name	HSC70 protein
Molecular Weight	53,518 Da
OMIM	600816
3D Structure	ModBase 3D Structure for P11142
ISO Certification	Manufactured in an ISO 9001:2015 Certified Laboratory.
Related Product Information for HSC70 protein	MBS8526760 is a protein targeting HSC70.
Other Notes	Small volumes of HSC70 protein vial(s) may occasionally become entrapped in the seal of the product vial during shipment and storage. If necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the container`s cap. Certain products may require to ship with dry ice and additional dry ice fee may apply.

ADDITIONAL DETAILS

NCBI/Uniprot data below describe general gene information for HSC70. It may not necessarily be applicable to this product.

NCBI GI #	5729877
NCBI GeneID	3312
NCBI Accession #	NP_006588.1
UniProt Primary Accession #	P11142
UniProt Secondary Accession #	Q9H3R6
UniProt Related Accession #	P11142
GenBank Nucleotide #	NM_006597.5
NCBI Official Full Name	heat shock cognate 71 kDa protein isoform 1
NCBI Official Synonym Full Names	heat shock protein family A (Hsp70) member 8
NCBI Official Symbol	HSPA8
NCBI Official Synonym Symbols	LAP1; HSC54; HSC70; HSC71; HSP71; HSP73; LAP-1; NIP71; HEL-33; HSPA10; HEL-S-72p
UniProt Protein Name	Heat shock cognate 71 kDa protein
UniProt Synonym Protein Names	Heat shock 70 kDa protein 8; Lipopolysaccharide-associated protein 1; LAP-1; LPS-associated protein 1
Protein Family	Heat shock cognate 71 kDa protein
UniProt Gene Name	HSPA8
UniProt Synonym Gene Names	HSC70; HSP73; HSPA10; LAP-1; LPS-associated protein 1
NCBI Protein Information	heat shock cognate 71 kDa protein

NCBI Summary for HSC70	This gene encodes a member of the heat shock protein 70 family, which contains both heat-inducible and constitutively expressed members. This protein belongs to the latter group, which are also referred to as heat-shock cognate proteins. It functions as a chaperone, and binds to nascent polypeptides to facilitate correct folding. It also functions as an ATPase in the disassembly of clathrin-coated vesicles during transport of membrane components through the cell. Alternatively spliced transcript variants encoding different isoforms have been found for this gene. [provided by RefSeq, Aug 2011]
UniProt Comments for HSC70	Molecular chaperone implicated in a wide variety of cellular processes, including protection of the proteome from stress, folding and transport of newly synthesized polypeptides, activation of proteolysis of misfolded proteins and the formation and dissociation of protein complexes. Plays a pivotal role in the protein quality control system, ensuring the correct folding of proteins, the re-folding of misfolded proteins and controlling the targeting of proteins for subsequent degradation (PubMed:21150129, PubMed:21148293, PubMed:24732912, PubMed:27916661, PubMed:23018488). This is achieved through cycles of ATP binding, ATP hydrolysis and ADP release, mediated by co-chaperones (PubMed:21150129, PubMed:21148293, PubMed:24732912, PubMed:27916661, PubMed:23018488). The co-chaperones have been shown to not only regulate different steps of the ATPase cycle of HSP70, but they also have an individual specificity such that one co-chaperone may promote folding of a substrate while another may promote degradation (PubMed:21150129, PubMed:21148293, PubMed:24732912, PubMed:27916661, PubMed:23018488). The affinity of HSP70 for polypeptides is regulated by its nucleotide bound state. In the ATP-bound form, it has a low affinity for substrate proteins. However, upon hydrolysis of the ATP to ADP, it undergoes a conformational change that increases its affinity for substrate proteins. HSP70 goes through repeated cycles of ATP hydrolysis and nucleotide exchange, which permits cycles of substrate binding and release. The HSP70-associated co-chaperones are of three types: J-domain co-chaperones HSP40s (stimulate ATPase hydrolysis by HSP70), the nucleotide exchange factors (NEF) such as BAG1/2/3 (facilitate conversion of HSP70 from the ADP-bound to the ATP-bound state thereby promoting substrate release), and the TPR domain chaperones such as HOPX and STUB1 (PubMed:24318877, PubMed:27474739, PubMed:24121476, PubMed:26865365). Acts as a repressor of transcriptional activation. Inhibits the transcriptional coactivator activity of CITED1 on Smad-mediated transcription. Component of the PRP19-CDC5L complex that forms an integral part of the spliceosome and is required for activating pre-mRNA splicing. May have a scaffolding role in the spliceosome assembly as it contacts all other components of the core complex. Binds bacterial lipopolysaccharide (LPS) and mediates LPS-induced inflammatory response, including TNF secretion by monocytes (PubMed:10722728, PubMed:11276205). Participates in the ER-associated degradation (ERAD) quality control pathway in conjunction with J domain-containing co-chaperones and the E3 ligase STUB1 (PubMed:23990462).
Research Articles on HSC70	**1.** The roles of the E3 ubiquitin ligase, carboxy-terminus Hsc70 interacting protein (CHIP) in various types of cancers.
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