



**LD Biopharma, Inc.**  
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<http://www.ldbiopharma.com>

## - PRODUCT DATA SHEET -

**Name of Product:** Recombinant Human HSP70-1 Protein  
**Catalog Number:** hRP-1977  
**Manufacturer:** LD Biopharma, Inc.

### Introduction

This intronless gene encodes a 70kDa heat shock protein, which is a member of the heat shock protein 70 family. In conjunction with other heat shock proteins, this protein stabilizes existing proteins against aggregation and mediates the folding of newly translated proteins in the cytosol and in organelles. It is also involved in the ubiquitin-proteasome pathway through interaction with the AU-rich element RNA-binding protein 1. The gene is located in the MHC class III region, in a cluster with two closely related genes, which encode similar proteins. In case of rotavirus A infection, serves as a post-attachment receptor for the virus to facilitate entry into the cell. It is essential for STUB1-mediated ubiquitination and degradation of FOXP3 in regulatory T-cells (Treg) during inflammation. Recent data indicated that HSP70 plays a major role in Schistosomiasis infection by regulating HSF1 activities.

Full-length human HSP70-1 cDNA (640 aa) was constructed with N-terminal codon optimization gene synthesis and expressed with a small T7-His-TEV cleavage site Tag (29aa) fusion at its N-terminal. This protein was expressed in *E. coli* as inclusion bodies. The final product was refolded using our unique “temperature shift inclusion body refolding” technology and chromatographically purified.

**Gene Symbol:** HSP70-1 (HSPA1A; HSX70)  
**Accession Number:** NP\_005336  
**Species:** Human  
**Size:** 50 µg / Vial  
**Composition:** 1.0 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, Sucrose and DTT.  
**Storage:** In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 30 days.

### Key References



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Kenji Ishida, et al., *Hsp70 may be a molecular regulator of Schistosome host invasion*. PLoS Negl Trop Dis. 10(9): e0004986. Doi: 10.1371/journal.pntd.0004986 (2015)

O'Regan L, et al., *Hsp72 is targeted to the mitotic spindle by Nek6 to promote K-fiber assembly and mitotic progression*. J. Cell Biol. 209 (3), 349-358 (2015)

Katoh H, et al., *Heat shock protein 70 regulates degradation of the mumps virus phosphoprotein via the ubiquitin-proteasome pathway*. J. Virol. 89 (6), 3188-3199 (2015)

Zhang B, et al., *Heat shock protein 72 suppresses apoptosis by increasing the stability of X-linked inhibitor of apoptosis protein in renal ischemia/reperfusion injury*. Mol Med Rep 11 (3), 1793-1799 (2015)

## **Applications**

1. May be used for in vitro HSP70-1 mediated protein degradation pathway regulation study for cancer/virus infected cells by intracellular delivery of this protein with ProFectin Reagent.
2. May be used for protein-protein interaction assay.
3. As enzymatic substrate for various proteases.
4. Potential biomarker protein for HSP70-1 diagnosis.
5. As immunogen for specific antibody production.

## **Quality Control**

Purity: > 90% by SDS-PAGE.

## **Recombinant Protein Sequence**

MASMTGGQQMGRGHHHHHGNLYFQGGFAKAAAIGIDLGTTYSVGVFQHGKVEI IANDQGNR  
TTPSYVAFTDTERLIGDAAKNQVALNPQNTVFDAKRLIGRKFQDPVQSDMKHWPQVINDGDK  
PKVQVSYKGETKAFYPEEISSMVLTKMKEIAEAYLGYPVNTNAVITVPAYFNDSQRQATKDAGVI  
AGLNVLRIINEPTAAAIAYGLDRITGKGERNVLI FDLGGGTFDVSILTIDDGIFEVKATAGDTHL  
GGEDFDNRLVNHFEFVKRKHKKDISQNKRAVRRRLRTACERAKRTLSSSTQASLEIDSLFEGID  
FYTSITRARFEELCSDLFRSTLEPVEKALRDAKLDKAQIHDLVLVGGSTRIPKVQKLLQDFNNG  
RDLNKSINPDEAVAYGAAVQAAILMGDKSENVQDLL