

PRODUCT INFORMATION



Hsp70 (human recombinant)

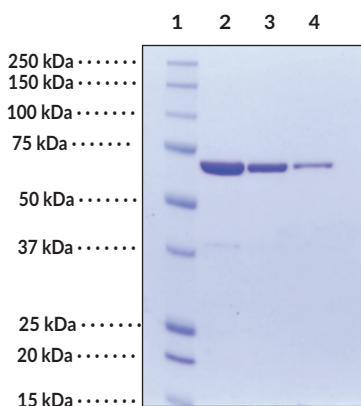
Item No. 22739

Overview and Properties

Synonyms: Heat Shock Protein 70, HspA1A
Source: Active N-terminal Histidine-tagged human Hsp70 protein (full length) purified from *E. coli*
Amino acids: 2-641 (full length)
Uniprot No.: P0DMV8
Molecular Weight: 71.7kDa
Storage: -80°C (as supplied); avoid freeze/thaw cycles by storing protein in aliquots
Stability: ≥1 year
Purity: *batch specific* (≥90% estimated by SDS-PAGE)
Supplied in: 50 mM HEPES pH 8.0, 150 mM sodium chloride, 1 mM DTT, and 10% glycerol
Protein Concentration: *batch specific* mg/ml
Activity: ATPase activity confirmed by ADP detection assay

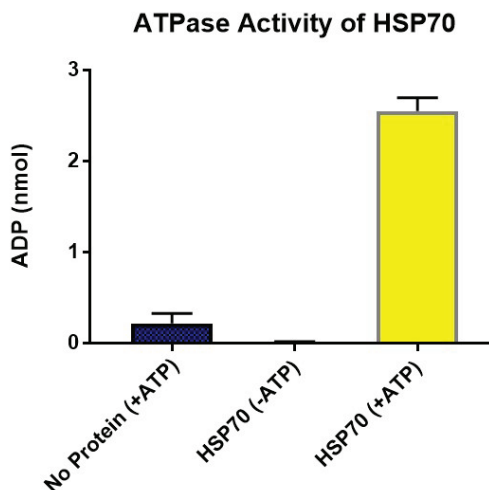
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images



Lane 1: MW Markers
Lane 2: Hsp70 (4 µg)
Lane 3: Hsp70 (2 µg)
Lane 4: Hsp70 (1 µg)

Representative gel image shown; actual purity may vary between each batch.



WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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Description

Heat shock protein 70s (Hsp70s) are abundant and stress-inducible 70 kDa molecular chaperone proteins encoded by a highly conserved, multigene family.¹ They are monomeric proteins that can be divided into two functional domains: an N-terminal ATPase domain and a substrate binding domain that contains a highly conserved EEVD motif at its C-terminus. Hsp70s are found in the cytosol, nuclei, endoplasmic reticulum, mitochondria, and chloroplasts of eukaryotes, as well as in bacteria. They function as molecular chaperones that assist in a wide range of cellular processes, including refolding of aggregated or misfolded proteins, co- and post-translational folding and assembly of nascent peptides, membrane translocation of secretory and organellar proteins, controlling activity of regulatory nuclear receptors, kinases and transcription factors, as well as acting cooperatively with the Hsp90 chaperone system in eukaryotes.² The Hsp70 chaperone cycle is ATP-dependent and initiated by transient interaction of the Hsp70 substrate binding domain with hydrophobic regions within a peptide or protein. It consists of an alteration between the low-affinity ATP-bound state with fast rates of substrate exchange and the high-affinity ADP bound state with slow rates of substrate exchange. Hsp70s are subject to a variety of post-translational modifications and their expression is upregulated under conditions of cellular stress and in a variety of disease states.

References

1. Boorstein, W.R., Ziegelhoffer, T., and Craig, E.A. Molecular evolution of the HSP70 multigene family. *J. Mol. Evol.* **38(1)**, 1-17 (1994).
2. Mayer, M.P. and Bukau, B. Hsp70 chaperones: Cellular functions and molecular mechanism. *Cell Mol. Life Sci.* **62(6)**, 670-684 (2005).

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