

AR03020PU-S**Recombinant Human HSC70 (active)****Alternate names:**

HSP73, HSPA10, Heat shock 70 kDa protein 8, Heat shock cognate 71 kDa protein

Quantity:

50 µg

Concentration:

2.1 mg/ml

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 44 kDa 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). When cells are subjected to metabolic stress (e.g., heat shock) a member of the hsp 70 family, hsp 70 (hsp72), is expressed; hsp 70 is highly related to hsc70 (>90% sequence identity). Constitutively expressed hsc70 rapidly forms a stable complex with the highly inducible hsp70 in cells following heat shock. The interaction of hsc70 with hsp 70 is regulated by ATP. These two heat shock proteins move together in the cell experiencing stress. Furthermore, research on hsc70 has implicates it with a role in facilitating the recovery of centrosomal structure and function after heat shock (6).

Uniprot ID:[P11142](#)**NCBI:**[NP_006588](#)**GeneID:**[3312](#)**Species:**

Human

Source:*E. coli*, *E. coli***Format:****State:** Liquid affinity purified protein**Purity:** >90% pure as determined by SDS-PAGE analysis.**Buffer System:** Na-Phosphate, pH 7.5 (20 mM), 150 mM NaCl, 10% Glycerol, 200 mM Imidazole.**Applications:**

ATPase Assay, WB control, Binding Assays, ELISA reference standard.

This protein has ATPase activity at the time of manufacture of 3.2 µM phosphate liberated/hr/ug protein in a 200 µL reaction at 37 C (pH 7.5) in the presence of 20 µL of 1 mM ATP using a Malachite Green assay.

Other applications not tested. Optimal dilutions are dependent on conditions and should be determined by the user.

Description:

Recombinant Human Hsc70 Protein with ATPase activity, his-tagged

Storage: Store the antibody (in aliquots) at -20°C.
Can be shipped at 2-8 °C.
Avoid repeated freezing and thawing.
Shelf life: One year from despatch.

General Readings:

1. Brown, C. L. et al. (1993) *J. Cell Biol.*, 120 (5): 1101-1112
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. Brown, C. L. et al. (1996) *J. Biol. Chem.*, 271 (2): 833-840.