



HSC 70 (h2): 293T Lysate: sc-175268

BACKGROUND

The HSP 70 family is composed of four highly conserved proteins: HSP 70, HSC 70, GRP 75 and GRP 78. These proteins serve a variety of roles: they act as molecular chaperones facilitating the assembly of multi-protein complexes, participate in the translocation of polypeptides across cell membranes and to the nucleus, and aid in the proper folding of nascent polypeptide chains. All members of the family, except HSP 70, are constitutively expressed in primate cells. HSP 70 expression is strongly induced in response to heat stress. HSP 70 and HSC 70 play key roles in the cytosolic endoplasmic reticulum and mitochondrial import machinery and are found in both the cytosol and nucleus of mammalian cells. Both HSP 70 and HSC 70 are involved in the chaperoning of nascent polypeptide chains and in protecting cells against the accumulation of improperly folded proteins. GRP 78 is localized in the endoplasmic reticulum, where it receives imported secretory proteins and is involved in the folding and translocation of nascent peptide chains. GRP 75 expression is restricted to the mitochondrial matrix and aids in the translocation and folding of nascent polypeptide chains of both nuclear and mitochondrial origin. GRP 75 and GRP 78 are unresponsive to heat stress and are induced by glucose deprivation. It has been postulated that members of the HSP 70 family act as force-generating motors, relying on the hydrolysis of ATP for their activity.

REFERENCES

1. Martin, J., Horwich, A.L. and Hartl, F.U. 1992. Prevention of protein denaturation under heat stress by the chaperonin HSP 60. *Science* 258: 995-998.
2. Hatayama, T., Tsujioka, K., Wakatsuki, T., Kitamura, T. and Imahara, H. 1992. Effects of low culture temperature on the induction of HSP 70 mRNA and the accumulation of HSP 70 and HSP 105 in mouse FM3A cells. *J. Biochem.* 111: 484-490.
3. Bhattacharyya, T., Karnezis, A.N., Murphy, S.P., Hoang, T., Freeman, B.C., Phillips, B. and Morimoto, R.I. 1995. Cloning and subcellular localization of human mitochondrial HSP 70. *J. Biol. Chem.* 270: 1705-1710.
4. Haas, I.G. 1995. Protein-mediated protein maturation in eukaryotes. *FEBS Lett.* 369: 72-75.
5. Glick, B.S. 1995. Can HSP 70 proteins act as force-generating motors? *Cell* 80: 11-14.

CHROMOSOMAL LOCATION

Genetic locus: HSPA8 (human) mapping to 11q24.1.

PRODUCT

HSC 70 (h2): 293T Lysate represents a lysate of human HSC 70 transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

APPLICATIONS

HSC 70 (h2): 293T Lysate is suitable as a Western Blotting positive control for human reactive HSC 70 antibodies. Recommended use: 10-20 µl per lane.

Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.