SANTA CRUZ BIOTECHNOLOGY, INC.

HSP 70 (d-40): sc-25837

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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. Ingolia, T.D., et al. 1980. Sequence of three copies of the gene for the major *Drosophila* heat shock induced protein and their flanking regions. Cell 21: 669-679.
2. Topol, J., et al. 1985. Sequences required for *in vitro* transcriptional activation of a *Drosophila* HSP 70 gene. Cell 42: 527-537.
3. Berger, S.L. and Meselson, M. 1994. Production and cleavage of *Drosophila* HSP 70 transcripts extending beyond the polyadenylation site. Nucleic Acids Res. 22: 3218-3225.
4. Adams, M.D., et al. 2000. The genome sequence of *Drosophila melanogaster*. Science 287: 2185-2195.
5. The Interactive Fly. http://www.sdbonline.org/fly/aimain/1aahome.htm and http://www.sdbonline.org/fly/aimain/6biochem.htm

SOURCE

HSP 70 (d-40) is a rabbit polyclonal antibody raised against amino acids 531-570 of HSP 70 of *Drosophila melanogaster* origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

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

APPLICATIONS

HSP 70 (d-40) is recommended for detection of HSP 70 of *Drosophila melanogaster* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

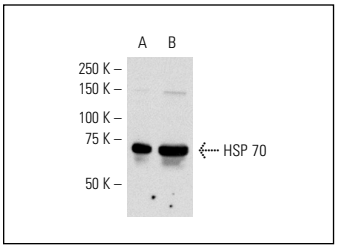
Molecular Weight of HSP 70: 70 kDa.

Positive Controls: *Schneider's Drosophila* line 2 whole cell lysate: sc-364794.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



HSP 70 (d-40): sc-25837. Western blot analysis of HSP 70 expression in *Drosophila* when loaded at 5µl (**A**) and 15µl (**B**).

SELECT PRODUCT CITATIONS

1. Su, K.H., et al. 2011. β common receptor integrates the erythropoietin signaling in activation of endothelial nitric oxide synthase. J. Cell. Physiol. E-Published.
2. Oddi, S., et al. 2012. Distinct regulation of nNOS and iNOS by CB2 receptor in remote delayed neurodegeneration. J. Mol. Med. 90: 371-387.
3. Bisicchia, E., et al. 2013. Activation of type-2 cannabinoid receptor inhibits neuroprotective and antiinflammatory actions of glucocorticoid receptor α: when one is better than two. Cell. Mol. Life Sci. E-Published.

PROTOCOLS

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