SANTA CRUZ BIOTECHNOLOGY, INC.

HSP 70 (N27F3-4): sc-66049

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.

CHROMOSOMAL LOCATION

Genetic locus: HSPA1A/HSPA1B (human) mapping to 6p21.33; Hspa1a/Hspa1b (mouse) mapping to 17 B1.

SOURCE

HSP 70 (N27F3-4) is a mouse monoclonal antibody raised against recombinant HSP 70/HSC 70 corresponding to amino acids 403-640 of HSP 70 of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide, 0.1% gelatin and 1% glycerol.

APPLICATIONS

HSP 70 (N27F3-4) is recommended for detection of HSP 70 of broad mammalian species and *Drosophila melanogaster,* zebrafish, *Caenorhabditis elegans* and plants 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1 µg per 1 x 10^6 cells); also recommended for HSC 70.

Suitable for use as control antibody for HSP 70 siRNA (h): sc-29352, HSP 70 siRNA (m): sc-35605, HSP 70 siRNA (r): sc-270278, HSP 70 shRNA Plasmid (h): sc-29352-SH, HSP 70 shRNA Plasmid (m): sc-35605-SH, HSP 70 shRNA Plasmid (r): sc-270278-SH, HSP 70 shRNA (h) Lentiviral Particles: sc-29352-V, HSP 70 shRNA (m) Lentiviral Particles: sc-35605-V and HSP 70 shRNA (r) Lentiviral Particles: sc-270278-V.

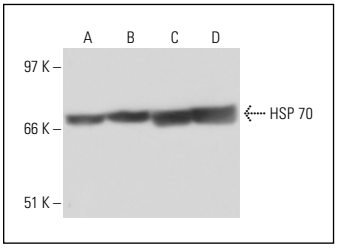
Molecular Weight of HSP 70: 70 kDa.

Positive Controls: HSP 70 (h): 293T Lysate: sc-116686.

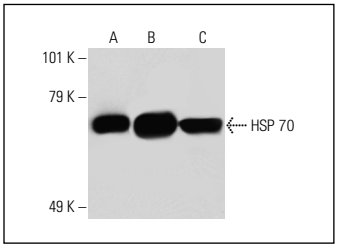
STORAGE

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

DATA



HSP 70 (N27F3-4): sc-66049. Western blot analysis of HSP 70 expression in NIH/3T3 (**A**), heat shock treated NIH/3T3 (**B**) and HeLa (**C**) and heat shock treated HeLa (**D**) whole cell lysates.



HSP 70 (N27F3-4): sc-66049. Western blot analysis of HSP 70 expression in non-transfected 293T: sc-117752 (**A**), human HSP 70 transfected 293T: sc-116686 (**B**) and HUV-EC-C (**C**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Djordjevic, A., et al. 2009. Stress type dependence of expression and cytoplasmic-nuclear partitioning of glucocorticoid receptor, HSP 90 and HSP 70 in Wistar rat brain. Neuropsychobiology 59: 213-221.
2. Granato, M., et al. 2013. HSP 70 inhibition by 2-phenylethynesulfonamide induces lysosomal cathepsin D release and immunogenic cell death in primary effusion lymphoma. Cell Death Dis. 4: e730.
3. Granato, M., et al. 2015. Tyrosine kinase inhibitor tyrphostin AG490 triggers both apoptosis and autophagy by reducing HSF1 and Mcl-1 in PEL cells. Cancer Lett. 366: 191-197.
4. Granato, M., et al. 2016. Concomitant reduction of c-Myc expression and PI3K/Akt/mTOR signaling by quercetin induces a strong cytotoxic effect against Burkitt's lymphoma. Int. J. Biochem. Cell Biol. 79: 393-400.
5. Granato, M., et al. 2018. Cytotoxic drugs activate KSHV lytic cycle in latently infected PEL cells by inducing a moderate ROS increase controlled by HSF1, Nrf2 and p62/SQSTM1. Viruses 11: 8.
6. Pinho, B.R., et al. 2020. The interplay between redox signalling and proteostasis in neurodegeneration: *in vivo* effects of a mitochondria-targeted antioxidant in Huntington's disease mice. Free Radic. Biol. Med. 146: 372-382.
7. Pinho, B.R., et al. 2021. Allosteric activation of HSP 70 reduces mutant huntingtin levels, the clustering of N-terminal fragments, and their nuclear accumulation. Life Sci. 285: 120009.
8. Almeida, L.M., et al. 2023. Stress response mechanisms in protein misfolding diseases: profiling a cellular model of Huntington's disease. Arch. Biochem. Biophys. 745: 109711.
9. Kovácsházi, C., et al. 2024. Effect of hypercholesterolemia on circulating and cardiomyocyte-derived extracellular vesicles. Sci. Rep. 14: 12016.

RESEARCH USE

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