

HSP 70 (C92F3A-5): sc-66048

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 (C92F3A-5) is a mouse monoclonal antibody raised against amino acids 436-503 of HSP 70 purified from HeLa cells of human origin.

PRODUCT

Each vial contains 100 µg IgG₁ in 1.0 ml of PBS with < 0.1% sodium azide and 50% glycerol.

APPLICATIONS

HSP 70 (C92F3A-5) is recommended for detection of HSP 70 of mouse, rat, human, bovine, porcine, canine, *Drosophila* and *C. elegans* 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 10⁶ cells).

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.

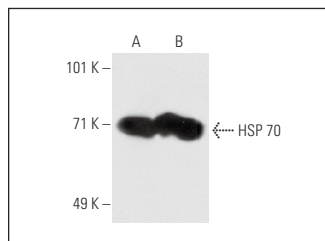
Molecular Weight of HSP 70: 70 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200.

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 (C92F3A-5): sc-66048. Western blot analysis of HSP 70 expression in 293 (A) and HeLa (B) whole cell lysates.

SELECT PRODUCT CITATIONS

- Cardile, V., et al. 2007. Fluoro-edenite fibers induce expression of HSP 70 and inflammatory response. *Int. J. Environ. Res. Public Health* 4: 195-202.
- Aboul Naga, S.H., et al. 2015. Intracellular pathways following uptake of bevacizumab in RPE cells. *Exp. Eye Res.* 131: 29-41.
- Kwon, H.J., et al. 2016. DDA3 and Mdp3 modulate Kif2a recruitment onto the mitotic spindle to control minus-end spindle dynamics. *J. Cell Sci.* 129: 2719-2725.
- Kim, D., et al. 2017. Holding of bovine blastocysts at suprazero temperatures using small molecules. *Sci. Rep.* 7: 9490.
- Yanda, M.K., et al. 2018. Role of calcium in adult onset polycystic kidney disease. *Cell. Signal.* 53: 140-150.
- Uscanga-Palomeque, A.C., et al. 2019. CD47 agonist peptide PKHB1 induces immunogenic cell death in T-cell acute lymphoblastic leukemia cells. *Cancer Sci.* 110: 256-268.
- Nguyen, T.T.N., et al. 2020. Preventive effects of dulaglutide on disuse muscle atrophy through inhibition of inflammation and apoptosis by induction of HSP 72 expression. *Front. Pharmacol.* 11: 90.
- Ha, D.P., et al. 2021. Suppression of ER-stress induction of GRP78 as an anti-neoplastic mechanism of the cardiac glycoside Lanatoside C in pancreatic cancer: Lanatoside C suppresses GRP78 stress induction. *Neoplasia* 23: 1213-1226.
- Surman, M., et al. 2022. Lectin-based study reveals the presence of disease-relevant glycoepitopes in bladder cancer cells and ectosomes. *Int. J. Mol. Sci.* 23: 14368.
- Emami, A., et al. 2023. Polyphyllin D-loaded solid lipid nanoparticles for breast cancer: Synthesis, characterization, *in vitro*, and *in vivo* studies. *Int. J. Pharm.* 639: 122976.

RESEARCH USE

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