

HSP 70 (4G4): sc-59569

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 (4G4) is a mouse monoclonal antibody raised against recombinant HSP 70 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

HSP 70 (4G4) is recommended for detection of HSP 70 of mouse, rat and human 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 immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500); non cross-reactive with other members of the HSP 70 family.

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.

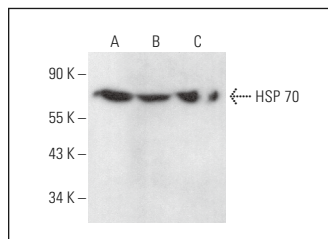
Molecular Weight of HSP 70: 70 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206, HeLa whole cell lysate: sc-2200 or HEK293 whole cell lysate: sc-45136.

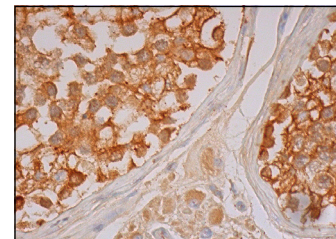
STORAGE

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

DATA



HSP 70 (4G4): sc-59569. Western blot analysis of HSP 70 expression in HeLa (A), MCF7 (B) and HEK293 (C) whole cell lysates.



HSP 70 (4G4): sc-59569. Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing cytoplasmic and membrane staining of cells in seminiferous ducts and cytoplasmic staining of Leydig cells.

SELECT PRODUCT CITATIONS

- Wang, H., et al. 2010. Proteomic identification of proteins involved in the anticancer activities of oridonin in Hep G2 cells. *Phytomedicine* 18: 163-169.
- Ellison, S.M., et al. 2013. Dose-dependent neuroprotection of VEGF165 in Huntington's disease striatum. *Mol. Ther.* 21: 1862-1875.
- Zheng, G., et al. 2016. MYCN-mediated miR-21 overexpression enhances chemo-resistance via targeting CADM1 in tongue cancer. *J. Mol. Med.* 94: 1129-1141.
- Cardile, V., et al. 2017. Potential anticancer activity of lichen secondary metabolite physodic acid. *Chem. Biol. Interact.* 263: 36-45.
- Cardile, V., et al. 2018. Cytotoxicity of demalonil thyriflorin A, a semisynthetic labdane-derived diterpenoid, to melanoma cells. *Toxicol. In Vitro* 47: 274-280.
- Hu, W.Y., et al. 2019. Targeting prostate cancer cells with enzalutamide-HDAC inhibitor hybrid drug 2-75. *Prostate* 79: 1166-1179.
- Cardile, V., et al. 2020. Moscatilin, a bibenzyl derivative from the orchid *Dendrobium loddigesii*, induces apoptosis in melanoma cells. *Chem. Biol. Interact.* 323: 109075.
- Canbek, U., et al. 2021. Analysis of the fluid biochemistry in patients with prolonged wound drainage after hip hemiarthroplasty. *Injury* 52: 918-925.
- Venera, C., et al. 2022. Physodic acid sensitizes LNCaP prostate cancer cells to TRAIL-induced apoptosis. *Toxicol. In Vitro* 84: 105432.
- Kitano, T., et al. 2023. Induction by rapamycin and proliferation-promoting activity of Hspb1 in a Tsc2-deficient cell line. *Exp. Ther. Med.* 26: 315.

RESEARCH USE

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