

HSP 70 (3A3): sc-32239

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, HSPA8 (human) mapping to 11q24.1; Hspa1a/Hspa1b (mouse) mapping to 17 B1, Hspa8 (mouse) mapping to 9 A5.1.

SOURCE

HSP 70 (3A3) is a mouse monoclonal antibody raised against recombinant HSP 70 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

HSP 70 (3A3) is available conjugated to agarose (sc-32239 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-32239 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-32239 PE), fluorescein (sc-32239 FITC), Alexa Fluor® 488 (sc-32239 AF488), Alexa Fluor® 546 (sc-32239 AF546), Alexa Fluor® 594 (sc-32239 AF594) or Alexa Fluor® 647 (sc-32239 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-32239 AF680) or Alexa Fluor® 790 (sc-32239 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

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

PROTOCOLS

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

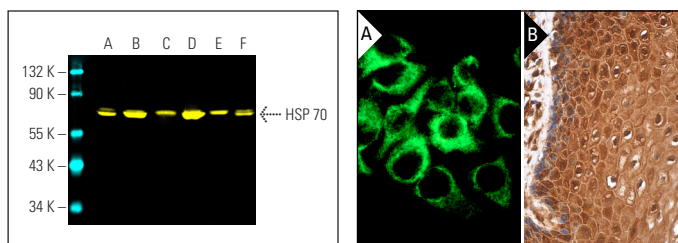
APPLICATIONS

HSP 70 (3A3) is recommended for detection of HSP 70 and HSC 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).

Molecular Weight of HSP 70: 70 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, K-562 whole cell lysate: sc-2203 or Hep G2 cell lysate: sc-2227.

DATA



HSP 70 (3A3) Alexa Fluor® 488: sc-32239 AF488. Direct fluorescent western blot analysis of HSP 70 expression in HeLa (A), Hep G2 (B), Jurkat (C), K-562 (D) and NIH/3T3 (E) whole cell lysates and human liver tissue extract (F). Blocked with UltraCruz® Blocking Reagent: sc-516214. Cruz Marker™ Molecular Weight Standards detected with Cruz Marker™ MW Tag-Alexa Fluor® 647: sc-516791.

HSP 70 (3A3): sc-32239. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human cervix tissue showing nuclear and cytoplasmic staining of squamous epithelial cells (B).

SELECT PRODUCT CITATIONS

- Lee, S.S., et al. 2008. The upregulation of heat shock protein 70 expression in areca quid chewing-associated oral squamous cell carcinomas. *Oral Oncol.* 44: 884-890.
- Kim, H., et al. 2016. Inhibition of HIV-1 reactivation by a telomerase-derived peptide in a HSP 90-dependent manner. *Sci. Rep.* 6: 28896.
- Hänggi, K., et al. 2017. RIPK1/RIPK3 promotes vascular permeability to allow tumor cell extravasation independent of its necroptotic function. *Cell Death Dis.* 8: e2588.
- Sanz-Rubio, D., et al. 2018. Stability of circulating exosomal miRNAs in healthy subjects. *Sci. Rep.* 8: 10306.
- D'Ambola, M., et al. 2019. Fusicoccane diterpenes from *Hypoestes forsskaolii* as heat shock protein 90 (HSP 90) modulators. *J. Nat. Prod.* 82: 539-549.
- Li, X.X., et al. 2020. 2,3,5,4'-tetrahydroxystilbene-2-O-β-D-glucoside restores BDNF-TrkB and FGF2-Akt signaling axis to attenuate stress-induced depression. *Neuroscience* 430: 25-33.
- Lu, C., et al. 2021. Human X chromosome exome sequencing identifies BCORL1 as contributor to spermatogenesis. *J. Med. Genet.* 58: 56-65.

RESEARCH USE

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