

HSP 70/HSC 70 (B-12): sc-137239

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/HSC 70 (B-12) is a mouse monoclonal antibody raised against amino acids 342-641 mapping at the C-terminus of HSP 70 of human origin.

PRODUCT

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

APPLICATIONS

HSP 70/HSC 70 (B-12) is recommended for detection of HSP 70 and HSC 70 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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/HSC 70: 70 kDa.

Positive Controls: HEK293 whole cell lysate: sc-45136, DU 145 cell lysate: sc-2268 or MCF7 whole cell lysate: sc-2206.

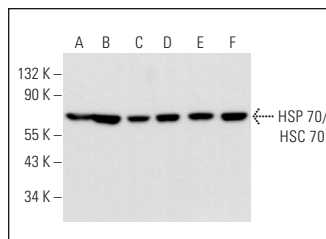
STORAGE

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

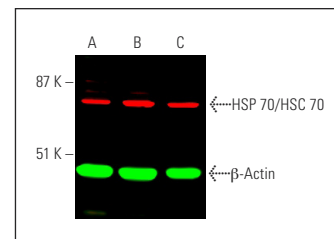
RESEARCH USE

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

DATA



HSP 70/HSC 70 (B-12): sc-137239. Western blot analysis of HSP 70/HSC 70 expression in HUV-EC-C (A), HEK293 (B), MDA-MB-231 (C), MCF7 (D), DU 145 (E) and HeLa (F) whole cell lysates. Detection reagent used: m-IgG_{2a} BP-HRP (Cruz Marker): sc-516132-CM.



Simultaneous near-infrared western blot analysis of HSP 70/HSC 70 expression, detected with HSP 70/HSC 70 (B-12): sc-137239 and m-IgG_{2a} BP-CFL 790: sc-516195 and β-Actin expression, detected with β-Actin (C4): sc-47778 and m-IgG_{2a} BP-CFL 680: sc-516180 in DU 145 (A), MCF7 (B) and HeLa (C) whole cell lysates.

SELECT PRODUCT CITATIONS

- Li, F., et al. 2011. Identification and analysis of signaling networks potentially involved in breast carcinoma metastasis to the brain. *PLoS ONE* 6: e21977.
- Nakamura, T., et al. 2014. Angiopoietin-like protein 2 induced by mechanical stress accelerates degeneration and hypertrophy of the ligamentum flavum in lumbar spinal canal stenosis. *PLoS ONE* 9: e85542.
- Li, X., et al. 2015. Validation of the HSP 70-Bag3 protein-protein interaction as a potential therapeutic target in cancer. *Mol. Cancer Ther.* 14: 642-648.
- Shao, H., et al. 2018. Exploration of benzothiazole-rhodacyanines as allosteric inhibitors of protein-protein interactions with heat shock protein 70 (HSP 70). *J. Med. Chem.* 61: 6163-6177.
- Cesa, L.C., et al. 2018. X-linked inhibitor of apoptosis protein (XIAP) is a client of heat shock protein 70 (HSP 70) and a biomarker of its inhibition. *J. Biol. Chem.* 293: 2370-2380.
- Zhang, C., et al. 2019. MicroRNA-16 inhibits cell proliferation and migration by targeting heat shock protein 70 in heat-denatured dermal fibroblasts. *Korean J. Intern. Med.* 34: 634-642.

PROTOCOLS

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



See **HSP 70/HSC 70 (W27): sc-24** for HSP 70/HSC 70 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.