

HSC 70 (B-6): sc-7298

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: HSPA8 (human) mapping to 11q24.1; Hspa8 (mouse) mapping to 9 A5.1.

SOURCE

HSC 70 (B-6) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 580-601 at the C-terminus of HSC 70 of human origin.

PRODUCT

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

HSC 70 (B-6) is available conjugated to agarose (sc-7298 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-7298 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-7298 PE), fluorescein (sc-7298 FITC), Alexa Fluor® 488 (sc-7298 AF488), Alexa Fluor® 546 (sc-7298 AF546), Alexa Fluor® 594 (sc-7298 AF594) or Alexa Fluor® 647 (sc-7298 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-7298 AF680) or Alexa Fluor® 790 (sc-7298 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-7298 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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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.

APPLICATIONS

HSC 70 (B-6) is recommended for detection of 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500), flow cytometry (1 µg per 1 x 10⁶ cells) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

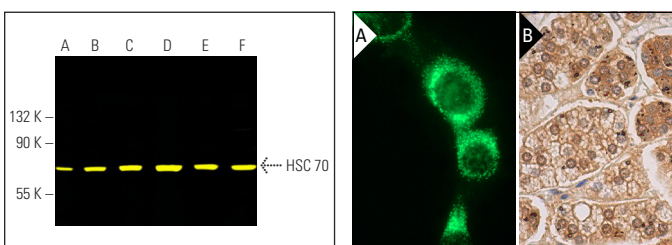
HSC 70 (B-6) is also recommended for detection of HSC 70 in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for HSC 70 siRNA (h): sc-29349, HSC 70 siRNA (m): sc-35593, HSC 70 shRNA Plasmid (h): sc-29349-SH, HSC 70 shRNA Plasmid (m): sc-35593-SH, HSC 70 shRNA (h) Lentiviral Particles: sc-29349-V and HSC 70 shRNA (m) Lentiviral Particles: sc-35593-V.

Molecular Weight of HSC 70: 70 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, Hep G2 cell lysate: sc-2227 or NIH/3T3 whole cell lysate: sc-2210.

DATA



HSC 70 (B-6) Alexa Fluor® 488: sc-7298 AF488. Direct fluorescent western blot analysis of HSC 70 expression in K-562 (A), Hep G2 (B), MCF7 (C), NIH/3T3 (D), PC-12 (E) and HeLa (F) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214.

HSC 70 (B-6): sc-7298. Immunofluorescence staining of methanol-fixed NIH/3T3 cells showing cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human adrenal gland tissue showing cytoplasmic and nuclear staining of glandular cells (B).

SELECT PRODUCT CITATIONS

1. Hermisson, M., et al. 2000. Expression and functional activity of heat shock proteins in human glioblastoma multiforme. *Neurology* 54: 1357-1365.
2. Adam, C., et al. 2021. Acetoacetate protects macrophages from lactic acidosis-induced mitochondrial dysfunction by metabolic reprogramming. *Nat. Commun.* 12: 7115.
3. D'Amore, C., et al. 2022. KDM2A and KDM3B as potential targets for the rescue of F508del-CFTR. *Int. J. Mol. Sci.* 23: 9612.
4. Czaplá, J., et al. 2023. Antitumor effect of anti-vascular therapy with STING agonist depends on the tumor microenvironment context. *Front. Oncol.* 13: 1249524.

RESEARCH USE

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