

# HSP 70/HSC 70 (5A5): sc-59571

## 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.

## SOURCE

HSP 70/HSC 70 (5A5) is a mouse monoclonal antibody raised against recombinant HSP 70/HSC 70 of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>2b</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## 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](http://www.scbt.com) for detailed protocols and support products.

## APPLICATIONS

HSP 70/HSC 70 (5A5) is recommended for detection of several members of the HSP 70 gene family including HSP 70, HSC 70, GRP 78 and, following heat shock, HSP 72 of mouse, rat, human and *Drosophila melanogaster* 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/HSC 70: 70 kDa.

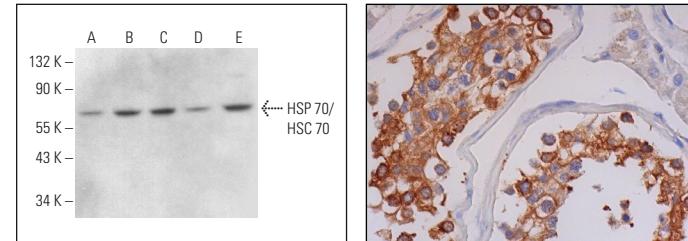
Positive Controls: DU 145 cell lysate: sc-2268, BT-20 cell lysate: sc-2223 or HEK293 whole cell lysate: sc-45136.

## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended:

- 1) Western Blotting: use m-IgG<sub>k</sub> BP-HRP: sc-516102 or m-IgG<sub>k</sub> BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.
- 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).
- 3) Immunofluorescence: use m-IgG<sub>k</sub> BP-FITC: sc-516140 or m-IgG<sub>k</sub> BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.
- 4) Immuno-histochemistry: use m-IgG<sub>k</sub> BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

## DATA



HSP 70/HSC 70 (5A5): sc-59571. Western blot analysis of HSP 70/HSC 70 expression in DU 145 (**A**), BT-20 (**B**), HEK293 (**C**), C2C12 (**D**) and TK-1 (**E**) whole cell lysates.

HSP 70/HSC 70 (5A5): sc-59571. Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing cytoplasmic and membrane staining of cells in seminiferous ducts.

## SELECT PRODUCT CITATIONS

1. Baird, N.L., et al. 2012. Arenavirus infection induces discrete cytosolic structures for RNA replication. *J. Virol.* 86: 11301-11310.
2. Chaudhary, P., et al. 2016. HSP70 binding protein 1 (HSPBP1) suppresses HIV-1 replication by inhibiting NFκB mediated activation of viral gene expression. *Nucleic Acids Res.* 44: 1613-1629.
3. Yan, Y., et al. 2017. HDAC6 suppresses age-dependent ectopic fat accumulation by maintaining the proteostasis of PLIN2 in *Drosophila*. *Dev. Cell* 43: 99-111.e5.
4. Osinska, K.P., et al. 2018. Circulating immune complexes and heat shock protein 70 in the sera of patients with sudden sensorineural hearing loss. *J. Int. Adv. Otol.* 14: 426-431.

## RESEARCH USE

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



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.