

# HSP 70 (F-3): sc-373867

## 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 (F-3) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 565-601 near the C-terminus of HSP 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.

HSP 70 (F-3) is available conjugated to agarose (sc-373867 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-373867 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-373867 PE), fluorescein (sc-373867 FITC), Alexa Fluor® 488 (sc-373867 AF488), Alexa Fluor® 546 (sc-373867 AF546), Alexa Fluor® 594 (sc-373867 AF594) or Alexa Fluor® 647 (sc-373867 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-373867 AF680) or Alexa Fluor® 790 (sc-373867 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-373867 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

HSP 70 (F-3) is recommended for detection of HSP 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

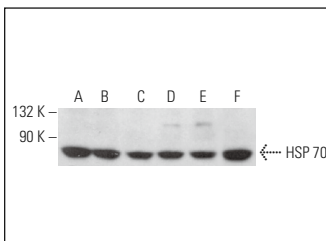
HSP 70 (F-3) is also recommended for detection of HSP 70 in additional species, including canine, bovine and porcine.

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.

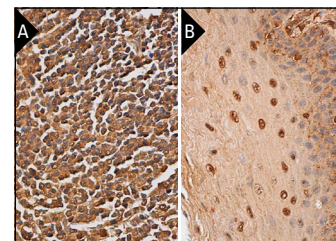
Molecular Weight of HSP 70: 70 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, HUV-EC-C whole cell lysate: sc-364180 or MCF7 whole cell lysate: sc-2206.

## DATA



HSP 70 (F-3): sc-373867. Western blot analysis of HSP 70 expression in HeLa (A), HEK293 (B), HUV-EC-C (C), MCF7 (D), C2C12 (E) and TK-1 (F) whole cell lysates.



HSP 70 (F-3): sc-373867. Immunoperoxidase staining of formalin fixed, paraffin-embedded human spleen tissue showing cytoplasmic and nuclear staining of cells in white pulp and cells in red pulp (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human esophagus tissue showing cytoplasmic and nuclear staining of squamous epithelial cells (B).

## SELECT PRODUCT CITATIONS

- Wang, J., et al. 2014. More efficient induction of antitumor T cell immunity by exosomes from CD40L gene-modified lung tumor cells. *Mol. Med. Rep.* 9: 125-131.
- Rahat, S.T., et al. 2023. Clinical-grade patches as a medium for enrichment of sweat-extracellular vesicles and facilitating their metabolic analysis. *Int. J. Mol. Sci.* 24: 7507.
- Lane, R.E., et al. 2024. Defining the relationship between cellular and extracellular vesicle (EV) content in breast cancer via an integrative multi-omic analysis. *Proteomics* 24: e2300089.

## RESEARCH USE

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