

HSP 70 (K-20): sc-1060

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 (mouse) mapping to 17 B1.

SOURCE

HSP 70 (K-20) is available as either goat (sc-1060) or rabbit (sc-1060-R) affinity purified polyclonal antibody raised against a peptide mapping at the C-terminus of HSP 70 of human origin.

PRODUCT

Each vial contains either 100 µg (sc-1060) or 200 µg (sc-1060-R) IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

HSP 70 (K-20) is available conjugated to agarose (sc-1060 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; and to phycoerythrin (sc-1060 PE, 200 µg/ml), for IF, IHC(P) and FCM.

Blocking peptide available for competition studies, sc-1060 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

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

PROTOCOLS

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

APPLICATIONS

HSP 70 (K-20) is recommended for detection of HSP 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).

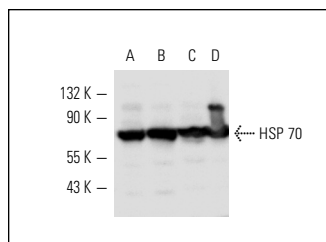
HSP 70 (K-20) is also recommended for detection of HSP 70 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for HSP 70 siRNA (h): sc-29352, HSP 70 siRNA (m): sc-35605, HSP 70 shRNA Plasmid (h): sc-29352-SH, HSP 70 shRNA Plasmid (m): sc-35605-SH, HSP 70 shRNA (h) Lentiviral Particles: sc-29352-V and HSP 70 shRNA (m) Lentiviral Particles: sc-35605-V.

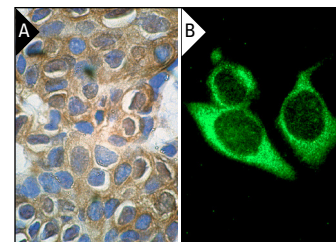
Molecular Weight of HSP 70: 70 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, HeLa + heat shock cell lysate: sc-2272 or NIH/3T3 whole cell lysate: sc-2210.

DATA



HSP 70 (K-20)-R: sc-1060-R. Western blot analysis of HSP 70 expression in HeLa (A), heat shock-treated HeLa (B), NIH/3T3 (C) and heat shock-treated NIH/3T3 (D) whole cell lysates.



HSP 70 (K-20): sc-1060. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human breast carcinoma tissue showing cytoplasmic localization (A). Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (B).

SELECT PRODUCT CITATIONS

1. Carr, V.M., et al. 2001. Odorants as cell-type specific activators of a heat shock response in the rat olfactory mucosa. *J. Comp. Neurol.* 432: 425-439.
2. Catalano, A., et al. 2013. Comparative antioxidant effects of lycopene, apo-10'-lycopenoic acid and apo-14'-lycopenoic acid in human macrophages exposed to H₂O₂ and cigarette smoke extract. *Food Chem. Toxicol.* 51: 71-79.
3. Yang, Y.C., et al. 2013. Androgen receptor inclusions acquire GRP78/BiP to ameliorate androgen-induced protein misfolding stress in embryonic stem cells. *Cell Death Dis.* 4: e607.

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Try **HSP 70 (3A3): sc-32239** or **HSP 70 (F-3): sc-373867**, our highly recommended monoclonal alternatives to HSP 70 (K-20).