

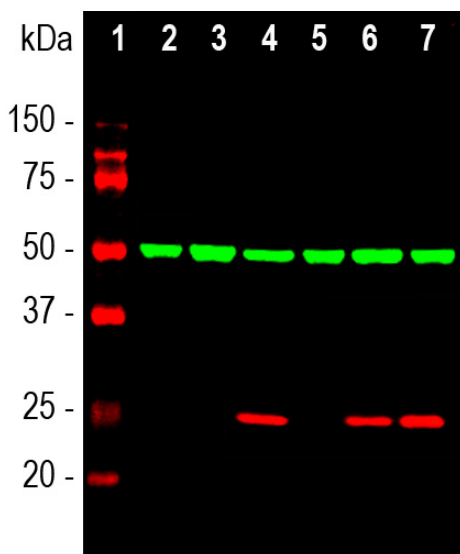
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HGNC Name: HSBP1
UniProt: P04792
RRID: AB_2572328
Immunogen: Recombinant full length human HSP27 expressed in and purified from *E. coli*
Format: Concentrated IgY preparation in PBS plus 0.02% Na₂S₂O₃
Storage: Store at 4°C
Recommended dilutions:
 WB: 1:2,000-5,000. IF/ICC 1:1,000.

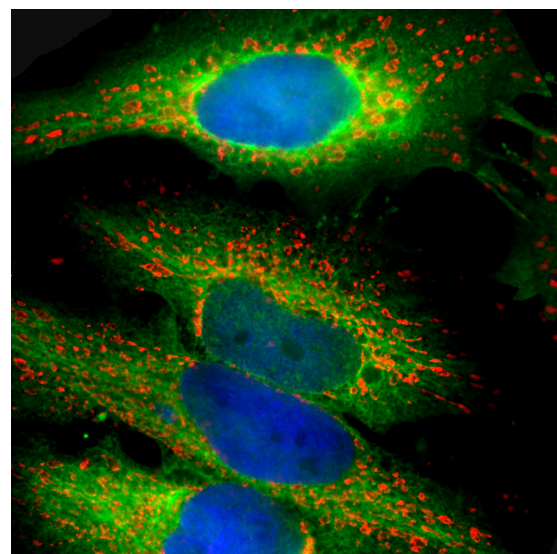
References:

1. Wyttenbach, A et al. Heat shock protein 27 prevents cellular polyglutamine toxicity and suppresses the increase of reactive oxygen species caused by huntingtin. *Hum. Molec. Genet.* 11:1137-51 (2002). 2. Evgrafov, OV et al. Mutant small heat-shock protein 27 causes axonal Charcot-Marie-Tooth disease and distal hereditary motor neuropathy. *Nature Genet.* 36:602-6 (2004). 3. Bruey J-M, et al. Hsp27 negatively regulates cell death by interacting with cytochrome c. *Nat. Cell Biol.* 2:645-52 (2000). 4. Guay J, et al. Regulation of actin filament dynamics by p38 map kinase-mediated phosphorylation of heat shock protein 27. *J. Cell Sci.* 110:357-68 (1997). 5. Ciocca DR et al. Biological and Clinical Implications of Heat Shock Protein 27000 (Hsp27): a Review. *J. Natl. Cancer Inst.* 85:1558-70 (1993). 6. Vidyasagar A, Wilson NA, Djamali A. Heat shock protein 27 (HSP27): biomarker of disease and therapeutic target. *Fibrogen. Tiss. Repair* 5:7 (2012). 7. Ciocca DR, Calderwood SK. Heat shock proteins in cancer: diagnostic, prognostic, predictive, and treatment implications. *Cell Stress Chaperones* 10:86-103 (2005).

Applications	Host	Isotype	Molecular Wt.	Species Cross-Reactivity
WB, IF/ICC	Chicken		27kDa	Hu, not Ms, Rt



Western blot analysis of whole cell lysates using chicken pAb to HSP27, CPCA-HSP27, dilution 1:2,000, in red. [1] protein standard (red), [2] NIH-3T3, [3] C6, [4] HeLa, [5] HEK293, [6] SH-SY5Y, and [7] COS-1 cells. Strong single band at 27kDa corresponds to the HSP27 protein strongly expressed in human cell lines. Note that the antibody does not recognize rodent HSP27. The blot was simultaneously probed with mouse mAb to β -tubulin, MCA-1B12, dilution 1:10,000 in green. A single band at 50kDa, which is detected in all cell lysates, corresponds to the β -tubulin proteins.



Immunofluorescent analysis of HeLa cells stained with chicken pAb to HSP27, CPCA-HSP27, dilution 1:1,000 in green, and costained with mouse mAb to HSP60, MCA-1C7 dilution 1:5,000 in red. Blue is DAPI staining of nuclear DNA. The CPCA-HSP27 antibody produces strong cytoplasmic staining, while the HSP60 antibody specifically labels mitochondria.

Background:

The **heat shock proteins** were discovered since they are heavily upregulated when cells are stressed by temperatures above the normal physiological range. They are expressed in unstressed cells also and have a normal function as chaperones, helping other proteins to fold correctly, but are required in much greater amounts if the cell or tissue is stressed by heat. Heat shock protein 27 (HSP27) is an abundant protein which functions as a chaperone but has many other functions. Upregulation of this protein is protective against neurodegenerative diseases at least in certain mouse models (1). Point mutations in the HSP27 gene are associated with two neurological diseases, **Charcot-Marie-Tooth disease type 2F** and **distal hereditary motor neuropathy IIB** (2). These diseases are associated with axonal loss apparently following defects in the transport of neurofilaments. HSP27 may bind cytoplasmic cytochrome c released from mitochondria which would otherwise normally activate the caspase apoptotic cascade (3). HSP27 is a major phosphoprotein of cells primarily under the influence of the p38/SAP kinase and JNK pathways (e.g. 4). The central region of the HSP27 molecule corresponds to a crystallin domain, a compact module found in many chaperones and heat shock proteins. HSP27 is implicated in several other aspects of cell signaling and response to cancer and other diseases (5-7). The amino acid sequence of HSP27 is relatively poorly conserved across species boundaries, so there are 159 amino acid identities between human, cow, rat and mouse HSP27, out of 204-209 amino acids. This variability results in some antibodies being species specific while others work across many species. The CPCA-HSP27 antibody was made against full length recombinant HSP27 expressed in and purified from *E. coli*. This antibody binds to human protein but not the the rat and mouse homologues on western blots. It can be used in IF and ICC. We also supply a mouse monoclonal antibody to HSP27, **MCA-6H11**, specific for the human protein but not recognizing rodent HSP27, which can therefore be used to identify human cells in a rodent background.

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Abbreviation Key:

mAb—Monoclonal Antibody pAb—Polyclonal Antibody WB—Western Blot IF—Immunofluorescence ICC—Immunocytochemistry IHC—Immunohistochemistry E—ELISA Hu—Human Mo—Monkey Do—Dog Rt—Rat Ms—Mouse Co—Cow Pi—Pig Ho—Horse Ch—Chicken Dr—D. rerio Dm—D. melanogaster Sm—S. mutans Ce—C. elegans Sc—S. cerevisiae Sa—S. aureus Ec—E. coli.