

# HSP 27 (HSP25-31): sc-51958

## BACKGROUND

The heat shock proteins (HSPs) comprise a group of highly conserved, abundantly expressed proteins with diverse functions, including the assembly and sequestering of multiprotein complexes, transportation of nascent polypeptide chains across cellular membranes and regulation of protein folding. Heat shock proteins (also known as molecular chaperones) fall into six general families: HSP 90, HSP 70, HSP 60, the low molecular weight HSPs, the immunophilins and the HSP 110 family. The low molecular weight family includes HSP 10, HSP 20, HSP 27, HSP 32 and HSP 40. HSP 27 is a constitutively expressed cytoplasmic protein that co-localizes to the nucleus upon stress induced by insult. Heat, cytokines and hormones are among the factors that stimulate the synthesis of HSP 27. *In vitro*, HSP 27 becomes highly phosphorylated following exposure to stress. The discovery that HSP 27 is regulated by hormones such as estrogen has led to studies establishing a relationship between HSP 27 and breast cancer.

## REFERENCES

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- Kelley, P. and Schlesinger, M.J. 1978. The effect of amino acid analogues and heat shock on gene expression in chicken embryo fibroblasts. *Cell* 15: 1277-1286.
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- Ciocca, D.R., et al. 1993. Biological and clinical implications of heat shock protein 27,000 (HSP 27): a review. *J. Natl. Cancer Inst.* 85: 1558-1570.
- Todd, M.J., et al. 1994. Dynamics of the chaperonin ATPase cycle: implications for facilitated protein folding. *Science* 265: 659-666.
- Freshney, N.W., et al. 1994. Interleukin-1 activates a novel protein kinase cascade that results in the phosphorylation of HSP 27. *Cell* 78: 1039-1049.
- Mehlen, P., et al. 1995. Tumor necrosis factor- $\alpha$  induces change in the phosphorylation, cellular localization, and oligomerization of human HSP 27, a stress protein that confers cellular resistance to this cytokine. *J. Cell. Biochem.* 58: 248-259.
- Satoh, J. and Kim, S.U. 1995. Cytokines and growth factors induce HSP 27 phosphorylation in human astrocytes. *J. Neuropathol. Exp. Neurol.* 54: 504-512.

## CHROMOSOMAL LOCATION

Genetic locus: HSPB1 (human) mapping to 7q11.23; Hspb1 (mouse) mapping to 5 G2.

## SOURCE

HSP 27 (HSP25-31) is a mouse monoclonal antibody raised against recombinant HSP27 of chicken origin.

## PRODUCT

Each vial contains 100  $\mu$ g IgG<sub>2b</sub> in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

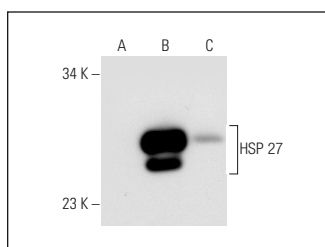
HSP 27 (HSP25-31) is recommended for detection of HSP 27 of mouse, rat, human, porcine, feline and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for HSP 27 siRNA (h): sc-29350, HSP 27 siRNA (m): sc-35598, HSP 27 shRNA Plasmid (h): sc-29350-SH, HSP 27 shRNA Plasmid (m): sc-35598-SH, HSP 27 shRNA (h) Lentiviral Particles: sc-29350-V, and HSP 27 shRNA (m) Lentiviral Particles: sc-35598-V.

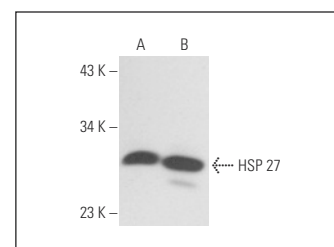
Molecular Weight of HSP 27: 27 kDa.

Positive Controls: ECV304 cell lysate: sc-2269, HSP 27 (m): 293T Lysate: sc-120910 or HeLa+heat shock cell lysate: sc-2272.

## DATA



HSP 27 (HSP25-31): sc-51958. Western blot analysis of HSP 27 expression in non-transfected 293T: sc-117752 (A), mouse HSP 27 transfected 293T: sc-120910 (B) and ECV304 (C) whole cell lysates.



HSP 27 (HSP25-31): sc-51958. Western blot analysis of HSP 27 expression in HeLa (A) and heat shock treated HeLa (B) whole cell lysates.

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



See **HSP 27 (F-4): sc-13132** for HSP 27 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.