

p-HSP 27 (Ser 78)-R: sc-16568-R

BACKGROUND

HSP 27 is a constitutively expressed cytoplasmic protein that co-localizes to the nucleus upon stress-induced insult. The intracellular concentration of HSP 27 increases several-fold after heat shock and other metabolic stresses, and is closely associated with the acquisition of thermotolerance. In addition to heat shock, cytokines and hormones are among the factors that stimulate the synthesis of HSP 27. MAP kinase-activated protein kinase-2 phosphorylates HSP 27 on Serine residues Ser 15, Ser 78 and Ser 82, which are phosphorylated *in vivo* in response to growth factors and heat shock. Ser 15, Ser 78 and Ser 82 occur in the sequence motif RXXS, which is recognized by ribosomal protein S6 kinase II.

REFERENCES

- Landry, J., et al. 1992. Human HSP 27 is phosphorylated at Serines 78 and 82 by heat shock and mitogen-activated kinases that recognize the same amino acid motif as S6 kinase II. *J. Biol. Chem.* 267: 794-803.
- Stokoe, D., et al. 1992. Identification of MAPKAP kinase 2 as a major enzyme responsible for the phosphorylation of the small mammalian heat shock proteins. *FEBS Lett.* 313: 307-313.
- 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.
- 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.
- 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.

SOURCE

p-HSP 27 (Ser 78)-R is available as a rabbit polyclonal affinity purified antibody raised against a short amino acid sequence containing Ser 78 phosphorylated HSP 27 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-16568 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.

PROTOCOLS

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

APPLICATIONS

p-HSP 27 (Ser 78)-R is recommended for detection of Ser 78 phosphorylated HSP 27 of 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), 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).

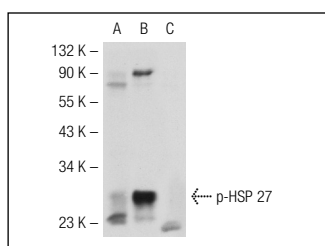
p-HSP 27 (Ser 78)-R is also recommended for detection of correspondingly phosphorylated Ser on HSP 27 in additional species, including equine, canine and bovine.

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

Molecular Weight of p-HSP 27: 27 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, HeLa + heat shock cell lysate: sc-2272 or HeLa + UV irradiated cell lysate: sc-2221.

DATA



p-HSP 27 (Ser 78)-R: sc-16568-R. Western blot analysis of HSP 27 phosphorylation in untreated (A), heat shocked (B) and heat shocked and lambda protein phosphatase treated (C) HeLa whole cell lysates.



p-HSP 27 (Ser 78)-R: sc-16568-R. Immunoperoxidase staining of formalin fixed, paraffin-embedded human vulva/anal skin tissue showing cytoplasmic and nuclear staining of squamous epithelial cells.

SELECT PRODUCT CITATIONS

- Somara, S., et al. 2004. Tropomyosin interacts with phosphorylated HSP27 in agonist-induced contraction of smooth muscle. *Am. J. Physiol., Cell Physiol.* 286: C1290-C1301.
- Ross, S., et al. 2006. High-content screening analysis of the p38 pathway: profiling of structurally related p38α kinase inhibitors using cell-based assays. *Assay Drug Dev. Technol.* 4: 397-409.
- Somara, S., et al. 2009. Role of thin-filament regulatory proteins in relaxation of colonic smooth muscle contraction. *Am. J. Physiol. Gastrointest. Liver Physiol.* 297: G958-G966.

RESEARCH USE

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