SANTA CRUZ BIOTECHNOLOGY, INC.

p-HSP 27 (5B9): sc-81498

BACKGROUND

HSP 27 is a constitutively expressed cytoplasmic protein that co-localizes to the nucleus upon stress-induced insult. Heat shock, cytokines and hormones are among the factors that stimulate the synthesis of HSP 27. The intracellular concentration of the mammalian heat shock protein HSP 27 increases several-fold after heat shock and other metabolic stresses, and is closely associated with the acquisition of thermotolerance. 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

1. Landry, J., Lambert, H., Zhou, M., Lavoie, J.N., Hickey, E., Weber, L.A. and Anderson, C.W. 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.
2. Stokoe, D., Engel, K., Campbell, D.G., Cohen, P. and Gaestel, M. 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.
3. Ciocca, D.R., Oesterreich, S., Chamness, G.C., McGuire, W.L. and Fuqua, S.A. 1993. Biological and clinical implications of heat shock protein 27,000 (HSP 27): a review. J. Natl. Cancer Inst. 85: 1558-1570.
4. Freshney, N.W., Rawlinson, L., Guesdon, F., Jones, E., Cowley, S., Hsuan, J. and Saklatvala, J. 1994. Interleukin-1 activates a novel protein kinase cascade that results in the phosphorylation of HSP 27. Cell 78: 1039-1049.
5. Mehlen, P., Mehlen, A., Guillet, D., Preville, X. and Arrigo, A.P. 1995. Tumor necrosis factor α 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.
6. 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

p-HSP 27 (5B9) is a mouse monoclonal antibody raised against phosphopeptide corresponding to amino acid residues surrounding Ser 82 of HSP 27 of human origin.

PRODUCT

Each vial contains 50 µg IgG_{2a} in 0.5 ml of PBS with < 0.1% sodium azide, 0.1% gelatin, PEG and sucrose.

APPLICATIONS

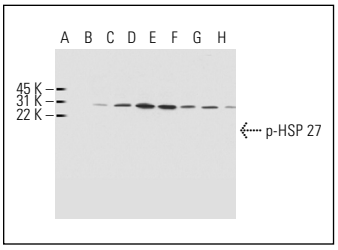
p-HSP 27 (5B9) is recommended for detection of Ser 82 phosphorylated HSP 27 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)]; non cross-reactive with non-phosphorylated HSP 27 or unrelated p-Ser proteins.

Suitable for use as control antibody for HSP 27 siRNA (h): sc-29350, HSP 27 siRNA (m): sc-35598, HSP 27 siRNA (r): sc-270545, HSP 27 shRNA Plasmid (h): sc-29350-SH, HSP 27 shRNA Plasmid (m): sc-35598-SH, HSP 27 shRNA Plasmid (r): sc-270545-SH, HSP 27 shRNA (h) Lentiviral Particles: sc-29350-V, HSP 27 shRNA (m) Lentiviral Particles: sc-35598-V and HSP 27 shRNA (r) Lentiviral Particles: sc-270545-V.

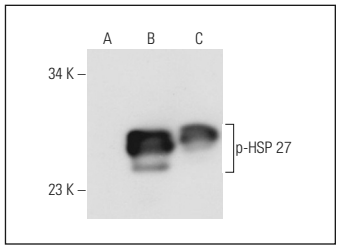
Molecular Weight of p-HSP 27: 27 kDa.

Positive Controls: ECV304 cell lysate: sc-2269, HSP 27 (m): 293T Lysate: sc-120910 or HeLa whole cell lysate: sc-2200.

DATA



p-HSP 27 (5B9): sc-81498. Western blot analysis of HSP 27 phosphorylation in serum starved Hep G2 cells (**A**) and serum starved Hep G2 cells treated with 10 ng/ml EGF for 5 min (**B**), 15 min (**C**), 30 min (**D**), 1 hr (**E**), 2 hrs (**F**), 4 hrs (**G**) and 8 hrs (**H**).



p-HSP 27 (5B9): sc-81498. Western blot analysis of HSP 27 phosphorylation in non-transfected 293T: sc-117752 (**A**), mouse HSP 27 transfected 293T: sc-120910 (**B**) and ECV304 (**C**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Deng, H., Fung, G., Qiu, Y., Wang, C., Zhang, J., Jin, Z.G. and Luo, H. 2017. Cleavage of Grb2-associated binding protein 2 by viral proteinase 2A during coxsackievirus infection. Front. Cell. Infect. Microbiol. 7: 85.
2. Li, Z., Tang, X. and Duan, S. 2019. Interference from LncRNA SPRY4-IT1 restrains the proliferation, migration, and invasion of melanoma cells through inactivating MAPK pathway by up-regulating miR-22-3p. Int. J. Clin. Exp. Pathol. 12: 477-487.
3. Qian, X., Wang, H., Wang, Y., Chen, J., Guo, X. and Deng, H. 2020. Enhanced autophagy in GAB1-deficient vascular endothelial cells is responsible for atherosclerosis progression. Front. Physiol. 11: 559396.

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.