

p-HSF1 (Ser 230)-R: sc-30443-R

BACKGROUND

Prokaryotic and eukaryotic cells respond to thermal and chemical stress by inducing a group of genes collectively designated heat shock genes. In eukaryotes, this gene expression is regulated primarily at the transcription level. Heat shock transcription factors (HSF, also designated HSTF) 1 and 2 are involved in this regulation. HSF1 and HSF2 are upregulated by estrogen, at both the mRNA and protein level. HSF1 is normally found as a monomer, whose transcriptional activity is repressed by constitutive phosphorylation. Upon activation, HSF1 forms trimers, gains DNA binding activity and is translocated to the nucleus. HSF2 activity is associated with differentiation and development, and, like HSF1, binds DNA as a trimer. Both HSF1 and HSF2 are known to be induced by proteasome inhibitors of the ubiquitin pathway. Phosphorylation of HSF1 on Ser230 by heat shock has been shown to positively contribute to the transcriptional activity of HSF1. The other phosphorylated serine residues, Ser 303, Ser 307 and Ser 363 have demonstrated repression of transactivation capacity.

REFERENCES

1. Tanguay, R.M. 1988. Transcriptional activation of heat shock genes in eukaryotes. *Biochem. Cell Biol.* 66: 584-593.
2. Yang, X., et al. 1995. Estrogen dependent expression of heat shock transcription factor: implications for uterine synthesis of heat shock proteins. *J. Steroid Biochem. Mol. Biol.* 52: 415-419.
3. Wyman, C., et al. 1995. Determination of HSF2 stoichiometry at looped DNA complexes using scanning force microscopy. *EMBO J.* 14: 117-123.
4. Rallu, M., et al. 1997. Function and regulation of HSF2 during mouse embryogenesis. *Proc. Natl. Acad. Sci. USA* 94: 2392-2397.
5. Mathew, A., et al. 1998. Heat shock response and protein degradation: regulation of HSF2 by the ubiquitin-proteasome pathway. *Mol. Cell. Biol.* 18: 5091-5098.
6. He, B., et al. 1998. Glycogen synthase kinase 3 β and extracellular signal-regulated kinase inactivate HSF1 by facilitating the disappearance of transcriptionally active granules after heat shock. *Mol. Cell. Biol.* 18: 6624-6633.

CHROMOSOMAL LOCATION

Genetic locus: HSF1 (human) mapping to 8q24.3; Hsf1 (mouse) mapping to 15 D3.

SOURCE

p-HSF1 (Ser 230)-R is a rabbit polyclonal antibody raised against a short amino acid sequence containing Ser 230 phosphorylated HSF1 of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-30443 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

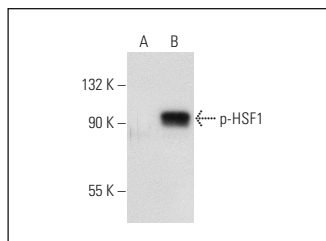
p-HSF1 (Ser 230)-R is recommended for detection of Ser 230 phosphorylated HSF1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for HSF1 siRNA (h): sc-35611, HSF1 siRNA (m): sc-35612, HSF1 shRNA Plasmid (h): sc-35611-SH, HSF1 shRNA Plasmid (m): sc-35612-SH, HSF1 shRNA (h) Lentiviral Particles: sc-35611-V and HSF1 shRNA (m) Lentiviral Particles: sc-35612-V.

Molecular Weight of p-HSF1: 89-90 kDa.

Positive Controls: HSF1 (h): 293T Lysate: sc-171930, HeLa whole cell lysate: sc-2200 or MCF7 whole cell lysate: sc-2206.

DATA



p-HSF1 (Ser 230)-R: sc-30443-R. Western blot analysis of HSF1 phosphorylation in non-transfected: sc-117752 (A) and human HSF1 transfected: sc-171930 (B) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Yoon, Y.J., et al. 2011. KRIBB11 inhibits HSP70 synthesis through inhibition of heat shock factor 1 function by impairing the recruitment of positive transcription elongation factor b to the hsp70 promoter. *J. Biol. Chem.* 286: 1737-1747.
2. Cappello, F., et al. 2011. Convergent sets of data from *in vivo* and *in vitro* methods point to an active role of Hsp60 in chronic obstructive pulmonary disease pathogenesis. *PLoS ONE* 6: e28200.
3. Pierzchalski, P., et al. 2014. The dynamics of heat shock system activation in Monomac-6 cells upon *Helicobacter pylori* infection. *J. Physiol. Pharmacol.* 65: 791-800.
4. Luan, Q., et al. 2015. RIPK1 regulates survival of human melanoma cells upon endoplasmic reticulum stress through autophagy. *Autophagy* 11: 975-994.

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.