

# p-HSF1 (Ser 303): sc-101698

## 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 Ser 230 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 heat-shock transcription factor 2 stoichiometry at looped DNA complexes using scanning force microscopy. *EMBO J.* 14: 117-123.
4. Rallu, M., et al. 1997. Function and regulation of heat shock factor 2 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 $\beta$  and extracellular signal-regulated kinase inactivate heat shock transcription factor 1 by facilitating the disappearance of transcriptionally active granules after heat shock. *Mol. Cell. Biol.* 18: 6624-6633.
7. Kawazoe, Y., et al. 1998. Proteasome inhibition leads to the activation of all members of the heat shock-factor family. *Eur. J. Biochem.* 255: 356-362.

## CHROMOSOMAL LOCATION

Genetic locus: HSF1 (human) mapping to 8q24.3.

## SOURCE

p-HSF1 (Ser 303) is a rabbit polyclonal antibody raised against a short amino acid sequence containing phosphorylated Ser 303 of HSF1 of human origin.

## PRODUCT

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

## APPLICATIONS

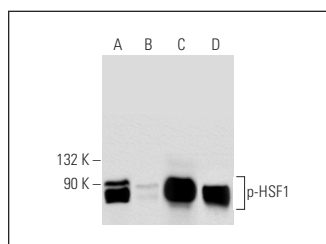
p-HSF1 (Ser 303) is recommended for detection of Ser 303 phosphorylated HSF1 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

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

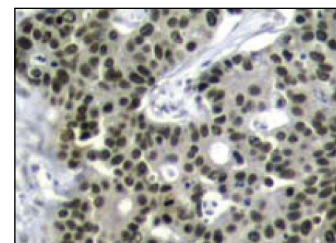
Molecular Weight of p-HSF1: 89-90 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, MCF7 whole cell lysate: sc-2206 or TNF- $\alpha$ -treated HUVEC cell extracts.

## DATA



Western blot analysis of HSF1 phosphorylation in untreated (A, C) and lambda protein phosphatase (sc-200312A) treated (B, D) HeLa whole cell lysates. Antibodies tested include p-HSF1 (Ser 303): sc-101698 (A, B) and HSF1 (H-311): sc-9144 (C, D).



p-HSF1 (Ser 303): sc-101698. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human breast carcinoma tissue showing nuclear localization.

## STORAGE

Store at 4 $^{\circ}$  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.