SANTA CRUZ BIOTECHNOLOGY, INC.

p-HSF1 (Ser 307): sc-135640

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 3β 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
8. Hietakangas, V., et al. 2003. Phosphorylation of serine 303 is a prerequisite for the stress-inducible SUMO modification of heat shock factor 1. Mol. Cell. Biol. 23:2953-2968.

CHROMOSOMAL LOCATION

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

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

SOURCE

p-HSF1 (Ser 307) is a rabbit polyclonal antibody raised against a short amino acid sequence containing phosphorylated Ser 307 of HSF1 of human origin.

PRODUCT

Each vial contains 100 µg IgG in 1.0 ml PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

p-HSF1 (Ser 307) is recommended for detection of Ser 307 phosphorylated HSF1 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) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

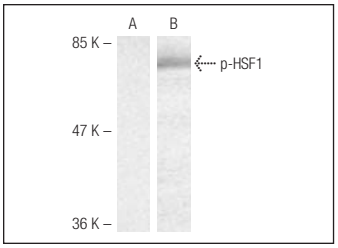
Suitable for use as control antibody for HSF1 siRNA (h): sc-35611, HSF1 shRNA Plasmid (h): sc-35611-SH and HSF1 shRNA (h) Lentiviral Particles: sc-35611-V.

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

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent) and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 4) Immunohistochemistry: use ImmunoCruz™: sc-2051 or ABC: sc-2018 rabbit IgG Staining Systems.

DATA



Western blot analysis of phosphorylated HSF1 expression in TNF-α-treated HUVEC cell extracts. Blots were probed with p-HSF1 (Ser 307): sc-135640 preincubated with cognate phosphorylated peptide (**A**) and p-HSF1 (Ser 307): sc-135640 (**B**).

RESEARCH USE

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