SANTA CRUZ BIOTECHNOLOGY, INC.

HSF1 (10H8): sc-13516

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 1 and 2 (HSF1 and HSF2), also designated HSTF1 and HSTF2, 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.

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.

CHROMOSOMAL LOCATION

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

SOURCE

HSF1 (10H8) is a rat monoclonal antibody raised against recombinant HSF1 of mouse origin, with epitope mapping to amino acids 378-395.

PRODUCT

Each vial contains 200 µg IgG_1 in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-13516 X, 200 µg/0.1 ml.

HSF1 (10H8) is available conjugated to agarose (sc-13516 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-13516 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-13516 PE), fluorescein (sc-13516 FITC), Alexa Fluor® 488 (sc-13516 AF488), Alexa Fluor® 546 (sc-13516 AF546), Alexa Fluor® 594 (sc-13516 AF594) or Alexa Fluor® 647 (sc-13516 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-13516 AF680) or Alexa Fluor® 790 (sc-13516 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

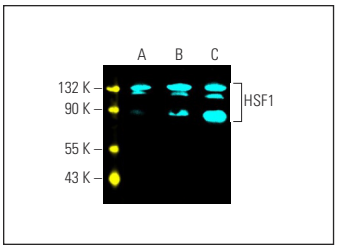
HSF1 (10H8) is recommended for detection of HSF1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), 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).

Suitable for use as control antibody for HSF1 siRNA (h): sc-35611, HSF1 siRNA (m): sc-35612, HSF1 siRNA (r): sc-270440, HSF1 shRNA Plasmid (h): sc-35611-SH, HSF1 shRNA Plasmid (m): sc-35612-SH, HSF1 shRNA Plasmid (r): sc-270440-SH, HSF1 shRNA (h) Lentiviral Particles: sc-35611-V, HSF1 shRNA (m) Lentiviral Particles: sc-35612-V and HSF1 shRNA (r) Lentiviral Particles: sc-270440-V.

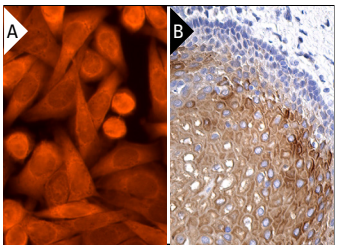
HSF1 (10H8) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight of HSF1: 89-90 kDa.

DATA



HSF1 (10H8) Alexa Fluor® 647: sc-13516 AF647. Direct fluorescent western blot analysis of HSF1 expression in PC-12 (**A**), MCF7 (**B**) and NIH/3T3 (**C**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Cruz Marker™ Molecular Weight Standards detected with Cruz Marker MW Tag-Alexa Fluor® 488: sc-516790.



HSF1 (10H8) Alexa Fluor® 546: sc-13516 AF546. Direct immunofluorescence staining of formalin-fixed SW480 cells showing cytoplasmic and nuclear localization. Blocked with UltraCruz® Blocking Reagent: sc-516214 (**A**). HSTF1 (10H8): sc-13516. Immunoperoxidase staining of formalin fixed, paraffin-embedded human esophagus tissue showing cytoplasmic staining of squamous epithelial cells (**B**).

SELECT PRODUCT CITATIONS

1. Wang, X., et al. 2003. Regulation of molecular chaperone gene transcription involves the serine phosphorylation, 14-3-3 ε binding, and cytoplasmic sequestration of heat shock factor 1. Mol. Cell. Biol. 23: 6013-6026.
2. Edvardson, S., et al. 2016. Leukoencephalopathy and early death associated with an Ashkenazi-Jewish founder mutation in the Hikeshi gene. J. Med. Genet. 53: 132-137.
3. Frinchi, M., et al. 2018. Heat shock protein (Hsp) regulation by muscarinic acetylcholine receptor (mAChR) activation in the rat hippocampus. J. Cell. Physiol. 233: 6107-6116.
4. Su, K.H., et al. 2019. Heat shock factor 1 is a direct antagonist of AMP-activated protein kinase. Mol. Cell 76: 546-561.e8.

RESEARCH USE

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