

Human Heat Shock Factor Protein 1 ELISA kit ab222879

1 Image

Overview

Product name Human Heat Shock Factor Protein 1 ELISA kit

Detection method Colorimetric

Precision

Intra-assay

Sample	n	Mean	SD	CV%
Plasma				4.9%

Inter-assay

Sample	n	Mean	SD	CV%
Plasma				9.8%

Sample type Tissue Extracts, Cell Lysate

Assay type Sandwich (quantitative)

Sensitivity 0.5 ng/ml

Range 0.625 ng/ml - 20 ng/ml

Assay time 4h 00m

Assay duration Multiple steps standard assay

Species reactivity
Reacts with: Human, Pig, Monkey
Does not react with: Mouse, Rabbit

Product overview

The Human HSF 1 ELISA (Enzyme-Linked Immunosorbent Assay) kit (ab222879) is designed for detection of human HSF 1 in cell lysate and tissue extract samples.

This assay employs a quantitative sandwich enzyme immunoassay technique that measures human HSF 1 in approximately 4 hours. A polyclonal antibody specific for human HSF 1 has been pre-coated onto a 96-well microplate with removable strips. HSF 1 in standards and samples is sandwiched by the immobilized antibody and a biotinylated polyclonal antibody specific for human HSF 1, which is recognized by a streptavidin-peroxidase (SP) conjugate. All unbound material is washed away and a peroxidase enzyme substrate is added. The color development is stopped and the intensity of the color is measured.

The entire kit may be stored at -20°C for long term storage before reconstitution - Avoid

repeated freeze-thaw cycles.

Notes Heat shock factor protein 1 (HSF 1), also known as heat shock transcription factor 1 or HSTF 1, is a 529-amino acid transcription factor of 57 kDa. HSF 1 is present in unstressed cells as an inactive monomeric form and becomes activated by heat and other stress stimuli. HSF 1 is rapidly induced after temperature stress and binds heat shock promoter elements (HSE) that are present upstream of all the heat shock genes. Heat shock protein 90 (HSP90) inhibits HSF 1 activation. HSP90-containing HSF 1 complex is present in the unstressed cell and dissociates during stress. HSF 1 plays a crucial role in inducing heat shock proteins, which is required for thermotolerance. It is involved in oogenesis, spermatogenesis, placental development, and regulation of lifespan.

Platform Pre-coated microplate (12 x 8 well strips)

Properties

Storage instructions Store at -20°C. Please refer to protocols.

Components	1 x 96 tests
100X Streptavidin-Peroxidase Conjugate	1 x 80µl
10X Diluent N Concentrate	1 x 30ml
1X Standard Diluent	1 x 2ml
20X Wash Buffer Concentrate	2 x 30ml
40X Biotinylated Human HSF 1	1 x 150µl
Anti- Human HSF 1 coated Microplate (12 x 8 wells)	1 unit
Chromogen Substrate	1 x 7ml
Human HSF 1 Standard	1 vial
Sealing Tapes	1 x 3 units
Stop Solution	1 x 11ml

Function DNA-binding protein that specifically binds heat shock promoter elements (HSE) and activates transcription. In higher eukaryotes, HSF is unable to bind to the HSE unless the cells are heat shocked.

Sequence similarities Belongs to the HSF family.

Domain the 9aaTAD motif is a transactivation domain present in a large number of yeast and animal transcription factors.

Post-translational modifications Phosphorylated on multiple serine residues, a subset of which are involved in stress-related regulation of transcription activation. Constitutive phosphorylation represses transcriptional activity at normal temperatures. Levels increase on specific residues heat-shock and enhance HSF1 transactivation activity. Phosphorylation on Ser-307 derepresses activation on heat-stress and in combination with Ser-303 phosphorylation appears to be involved in recovery after heat-stress. Phosphorylated on Ser-230 by CAMK2, in vitro. Cadmium also enhances phosphorylation

at this site. Phosphorylation on Ser-303 is a prerequisite for HSF1 sumoylation. Phosphorylation on Ser-121 inhibits transactivation and promotes HSP90 binding. Phosphorylation on Thr-142 also mediates transcriptional activity induced by heat. Phosphorylation on Ser-326 plays an important role in heat activation of HSF1 transcriptional activity.

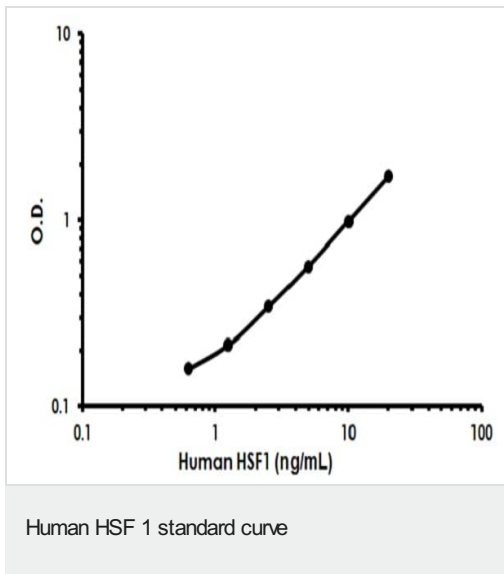
Sumoylated with SUMO1 and SUMO2 on heat-shock. Heat-inducible sumoylation occurs after 15 min of heat-shock, after which levels decrease and at 4 hours, levels return to control levels.

Sumoylation has no effect on HSE binding nor on transcriptional activity. Phosphorylation on Ser-303 is a prerequisite for sumoylation.

Cellular localization

Cytoplasm. Nucleus. Cytoplasmic during normal growth. On activation, translocates to nuclear stress granules. Colocalizes with SUMO1 in nuclear stress granules.

Images



Example of human HSF 1 standard curve. Background-subtracted data values (mean +/- SD) are graphed.

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