

HSF1 (phospho Ser303) Polyclonal Antibody

Catalog # AP67065

Product Information

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|--------------------------|------------------------|
| Application | WB, IHC-P, IF, ICC, E |
| Primary Accession | Q00613 |
| Reactivity | Human, Mouse |
| Host | Rabbit |
| Clonality | Polyclonal |
| Calculated MW | 57260 |

Additional Information

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| Gene ID | 3297 |
| Other Names | HSF1; HSTF1; Heat shock factor protein 1; HSF 1; Heat shock transcription factor 1; HSTF 1 |
| Dilution | WB~~Western Blot: 1/500 - 1/2000. Immunohistochemistry: 1/100 - 1/300. Immunofluorescence: 1/200 - 1/1000. ELISA: 1/20000. Not yet tested in other applications. IHC-P~~N/A IF~~1:50~200 ICC~~N/A E~~N/A |
| Format | Liquid in PBS containing 50% glycerol, 0.5% BSA and 0.09% (W/V) sodium azide. |
| Storage Conditions | -20°C |

Protein Information

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| Name | HSF1 (HGNC:5224) |
| Synonyms | HSTF1 |
| Function | Functions as a stress-inducible and DNA-binding transcription factor that plays a central role in the transcriptional activation of the heat shock response (HSR), leading to the expression of a large class of molecular chaperones, heat shock proteins (HSPs), that protect cells from cellular insult damage (PubMed: 11447121 , PubMed: 12659875 , PubMed: 12917326 , PubMed: 15016915 , PubMed: 18451878 , PubMed: 1871105 , PubMed: 1986252 , PubMed: 25963659 , PubMed: 26754925 , PubMed: 7623826 , PubMed: 7760831 , PubMed: 8940068 , PubMed: 8946918 , PubMed: 9121459 , PubMed: 9341107 , PubMed: 9499401 , PubMed: 9535852 , PubMed: 9727490). In unstressed cells, is present in a HSP90-containing multichaperone complex that maintains it in a non-DNA-binding inactivated monomeric form (PubMed: 11583998 , PubMed: 16278218 , PubMed: 9727490). Upon exposure to heat and other stress stimuli, undergoes homotrimerization and activates HSP gene transcription through binding to site-specific heat shock elements (HSEs) |

present in the promoter regions of HSP genes (PubMed:[10359787](#), PubMed:[11583998](#), PubMed:[12659875](#), PubMed:[16278218](#), PubMed:[1871105](#), PubMed:[1986252](#), PubMed:[25963659](#), PubMed:[26754925](#), PubMed:[7623826](#), PubMed:[7935471](#), PubMed:[8455624](#), PubMed:[8940068](#), PubMed:[9499401](#), PubMed:[9727490](#)). Upon heat shock stress, forms a chromatin-associated complex with TTC5/STRAP and p300/EP300 to stimulate HSR transcription, therefore increasing cell survival (PubMed:[18451878](#)). Activation is reversible, and during the attenuation and recovery phase period of the HSR, returns to its unactivated form (PubMed:[11583998](#), PubMed:[16278218](#)). Binds to inverted 5'-NGAAN-3' pentamer DNA sequences (PubMed:[1986252](#), PubMed:[26727489](#)). Binds to chromatin at heat shock gene promoters (PubMed:[25963659](#)). Activates transcription of transcription factor FOXR1 which in turn activates transcription of the heat shock chaperones HSPA1A and HSPA6 and the antioxidant NADPH-dependent reductase DHRS2 (PubMed:[34723967](#)). Also serves several other functions independently of its transcriptional activity. Involved in the repression of Ras-induced transcriptional activation of the c-fos gene in heat-stressed cells (PubMed:[9341107](#)). Positively regulates pre-mRNA 3'-end processing and polyadenylation of HSP70 mRNA upon heat-stressed cells in a symplekin (SYMPK)-dependent manner (PubMed:[14707147](#)). Plays a role in nuclear export of stress- induced HSP70 mRNA (PubMed:[17897941](#)). Plays a role in the regulation of mitotic progression (PubMed:[18794143](#)). Also plays a role as a negative regulator of non-homologous end joining (NHEJ) repair activity in a DNA damage-dependent manner (PubMed:[26359349](#)). Involved in stress-induced cancer cell proliferation in a IER5-dependent manner (PubMed:[26754925](#)).

Cellular Location

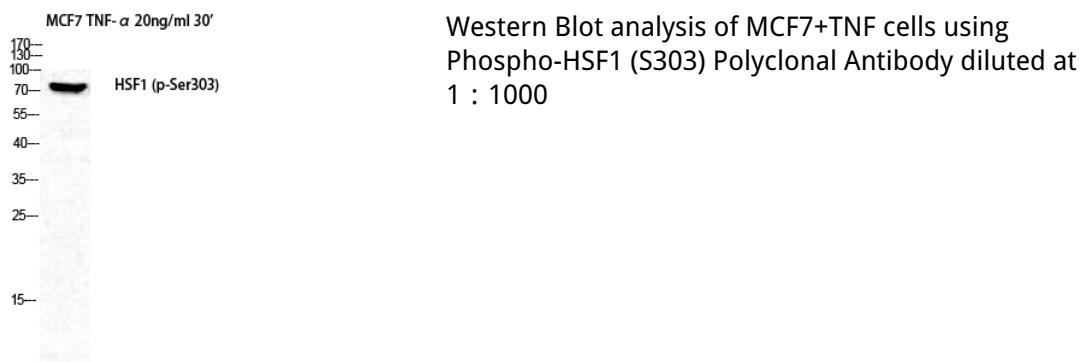
Nucleus. Cytoplasm. Nucleus, nucleoplasm. Cytoplasm, perinuclear region. Cytoplasm, cytoskeleton, spindle pole. Cytoplasm, cytoskeleton, microtubule organizing center, centrosome Chromosome, centromere, kinetochore Note=The monomeric form is cytoplasmic in unstressed cells (PubMed:26159920, PubMed:8455624). Predominantly nuclear protein in both unstressed and heat shocked cells (PubMed:10359787, PubMed:10413683). Translocates in the nucleus upon heat shock (PubMed:8455624). Nucleocytoplasmic shuttling protein (PubMed:26159920). Colocalizes with IER5 in the nucleus (PubMed:27354066). Colocalizes with BAG3 to the nucleus upon heat stress (PubMed:26159920, PubMed:8455624). Localizes in subnuclear granules called nuclear stress bodies (nSBs) upon heat shock (PubMed:10359787, PubMed:10747973, PubMed:11447121, PubMed:11514557, PubMed:19229036, PubMed:24581496, PubMed:25963659). Colocalizes with SYMPK and SUMO1 in nSBs upon heat shock (PubMed:10359787, PubMed:11447121, PubMed:11514557, PubMed:12665592, PubMed:14707147) Colocalizes with PRKACA/PKA in the nucleus and nSBs upon heat shock (PubMed:21085490). Relocalizes from the nucleus to the cytoplasm during the attenuation and recovery phase period of the heat shock response (PubMed:26159920). Translocates in the cytoplasm in a YWHAE- and XPO1/CRM1-dependent manner (PubMed:12917326). Together with histone H2AX, redistributed in discrete nuclear DNA damage-induced foci after ionizing radiation (IR) (PubMed:26359349). Colocalizes with calcium- responsive transactivator SS18L1 at kinetochore region on the mitotic chromosomes (PubMed:18794143). Colocalizes with gamma tubulin at centrosome (PubMed:18794143). Localizes at spindle pole in metaphase (PubMed:18794143). Colocalizes with PLK1 at spindle poles during prometaphase (PubMed:18794143).

Background

Function as a stress-inducible and DNA-binding transcription factor that plays a central role in the transcriptional activation of the heat shock response (HSR), leading to the expression of a large class of

molecular chaperones heat shock proteins (HSPs) that protect cells from cellular insults' damage (PubMed:[1871105](#), PubMed:[11447121](#), PubMed:[1986252](#), PubMed:[7760831](#), PubMed:[7623826](#), PubMed:[8946918](#), PubMed:[8940068](#), PubMed:[9341107](#), PubMed:[9121459](#), PubMed:[9727490](#), PubMed:[9499401](#), PubMed:[9535852](#), PubMed:[12659875](#), PubMed:[12917326](#), PubMed:[15016915](#), PubMed:[25963659](#), PubMed:[26754925](#)). In unstressed cells, is present in a HSP90-containing multichaperone complex that maintains it in a non-DNA-binding inactivated monomeric form (PubMed:[9727490](#), PubMed:[11583998](#), PubMed:[16278218](#)). Upon exposure to heat and other stress stimuli, undergoes homotrimerization and activates HSP gene transcription through binding to site-specific heat shock elements (HSEs) present in the promoter regions of HSP genes (PubMed:[1871105](#), PubMed:[1986252](#), PubMed:[8455624](#), PubMed:[7935471](#), PubMed:[7623826](#), PubMed:[8940068](#), PubMed:[9727490](#), PubMed:[9499401](#), PubMed:[10359787](#), PubMed:[11583998](#), PubMed:[12659875](#), PubMed:[16278218](#), PubMed:[25963659](#), PubMed:[26754925](#)). Activation is reversible, and during the attenuation and recovery phase period of the HSR, returns to its unactivated form (PubMed:[11583998](#), PubMed:[16278218](#)). Binds to inverted 5'-NGAAN-3' pentamer DNA sequences (PubMed:[1986252](#), PubMed:[26727489](#)). Binds to chromatin at heat shock gene promoters (PubMed:[25963659](#)). Plays also several other functions independently of its transcriptional activity. Involved in the repression of Ras-induced transcriptional activation of the c-fos gene in heat-stressed cells (PubMed:[9341107](#)). Positively regulates pre-mRNA 3'-end processing and polyadenylation of HSP70 mRNA upon heat-stressed cells in a symplekin (SYMPK)-dependent manner (PubMed:[14707147](#)). Plays a role in nuclear export of stress-induced HSP70 mRNA (PubMed:[17897941](#)). Plays a role in the regulation of mitotic progression (PubMed:[18794143](#)). Plays also a role as a negative regulator of non-homologous end joining (NHEJ) repair activity in a DNA damage- dependent manner (PubMed:[26359349](#)). Involved in stress-induced cancer cell proliferation in a IER5-dependent manner (PubMed:[26754925](#)).

Images



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