

HSF1 Antibody
Purified Mouse Monoclonal Antibody
Catalog # AO1966a

Specification

HSF1 Antibody - Product Information

Application	E, WB, IF, IHC
Primary Accession	Q00613
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Isotype	IgG2b
Calculated MW	57.3kDa KDa

Description

The product of this gene is a heat-shock transcription factor. Transcription of heat-shock genes is rapidly induced after temperature stress. Hsp90, by itself and/or associated with multichaperone complexes, is a major repressor of this gene.

Immunogen

Purified recombinant fragment of human HSF1 (AA: 256-359) expressed in E. Coli.

Formulation

Purified antibody in PBS with 0.05% sodium azide.

HSF1 Antibody - Additional Information

Gene ID 3297

Other Names

Heat shock factor protein 1, HSF 1, Heat shock transcription factor 1, HSTF 1, HSF1, HSTF1

Dilution

E~~1/10000
WB~~1/500 - 1/2000
IF~~1/200 - 1/1000
IHC~~1/200 - 1/1000

Storage

Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.

Precautions

HSF1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

HSF1 Antibody - Protein Information

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](http://www.uniprot.org/citations/11447121) , PubMed: [12659875](http://www.uniprot.org/citations/12659875) , PubMed: [12917326](http://www.uniprot.org/citations/12917326) , PubMed: [15016915](http://www.uniprot.org/citations/15016915) , PubMed: [18451878](http://www.uniprot.org/citations/18451878) , PubMed: [1871105](http://www.uniprot.org/citations/1871105) , PubMed: [1986252](http://www.uniprot.org/citations/1986252) , PubMed: [25963659](http://www.uniprot.org/citations/25963659) , PubMed: [26754925](http://www.uniprot.org/citations/26754925) , PubMed: [7623826](http://www.uniprot.org/citations/7623826) , PubMed: [7760831](http://www.uniprot.org/citations/7760831) , PubMed: [8940068](http://www.uniprot.org/citations/8940068) , PubMed: [8946918](http://www.uniprot.org/citations/8946918) , PubMed: [9121459](http://www.uniprot.org/citations/9121459) , PubMed: [9341107](http://www.uniprot.org/citations/9341107) , PubMed: [9499401](http://www.uniprot.org/citations/9499401) , PubMed: [9535852](http://www.uniprot.org/citations/9535852) , PubMed: [9727490](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/11583998) , PubMed: [16278218](http://www.uniprot.org/citations/16278218) , PubMed: [9727490](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/10359787) , PubMed: [11583998](http://www.uniprot.org/citations/11583998) , PubMed: [12659875](http://www.uniprot.org/citations/12659875) , PubMed: [16278218](http://www.uniprot.org/citations/16278218) , PubMed: [1871105](http://www.uniprot.org/citations/1871105) , PubMed: [1986252](http://www.uniprot.org/citations/1986252) , PubMed: [25963659](http://www.uniprot.org/citations/25963659) , PubMed: [26754925](http://www.uniprot.org/citations/26754925) , PubMed: [7623826](http://www.uniprot.org/citations/7623826) , PubMed: [7935471](http://www.uniprot.org/citations/7935471) , PubMed: [8455624](http://www.uniprot.org/citations/8455624) , PubMed: [8940068](http://www.uniprot.org/citations/8940068) , PubMed: [9499401](http://www.uniprot.org/citations/9499401) , PubMed: [9727490](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/18451878)). Activation is reversible, and during the attenuation and recovery phase period of the HSR, returns to its unactivated form (PubMed: [11583998](http://www.uniprot.org/citations/11583998) , PubMed: [16278218](http://www.uniprot.org/citations/16278218)). Binds to inverted 5'-NGAAN-3' pentamer DNA sequences (PubMed: [1986252](http://www.uniprot.org/citations/1986252) , PubMed: [26727489](http://www.uniprot.org/citations/26727489)). Binds to chromatin at heat shock gene promoters (PubMed: [25963659](http://www.uniprot.org/citations/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).

HSF1 Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

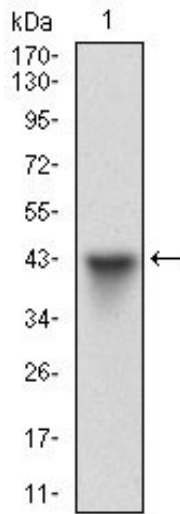
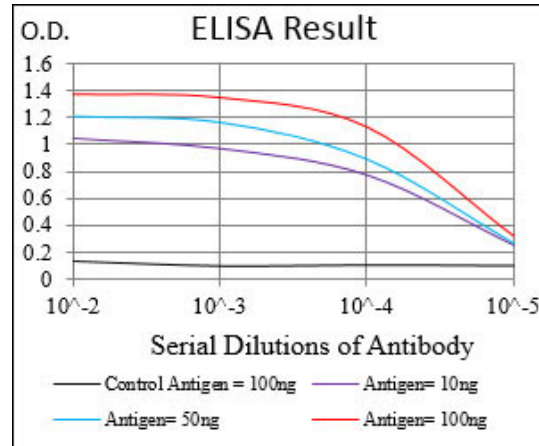


Figure 1: Western blot analysis using HSF1 mAb against human HSF1 (AA: 256-359) recombinant protein. (Expected MW is 36.5 kDa)

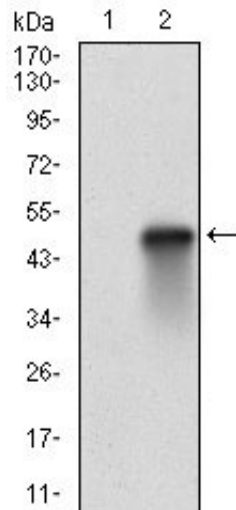


Figure 2: Western blot analysis using HSF1 mAb against HEK293 (1) and HSF1 (AA: 256-359)-hlgGfc transfected HEK293 (2) cell lysate.

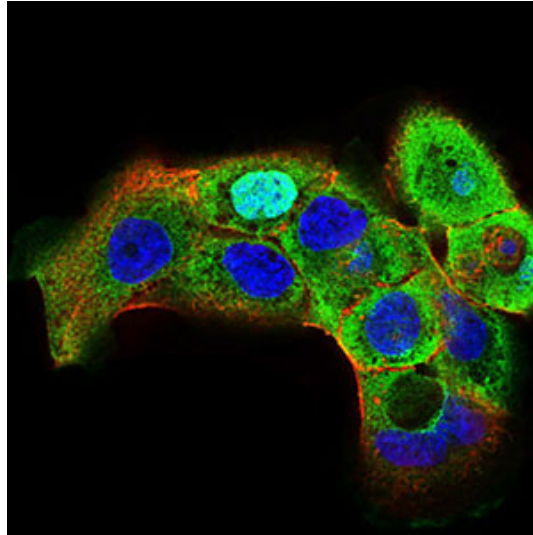


Figure 3: Immunofluorescence analysis of A431 cells using HSF1 mouse mAb (green). Blue: DRAQ5 fluorescent DNA dye. Red: Actin filaments have been labeled with Alexa Fluor-555 phalloidin. Secondary antibody from Fisher (Cat#: 35503)

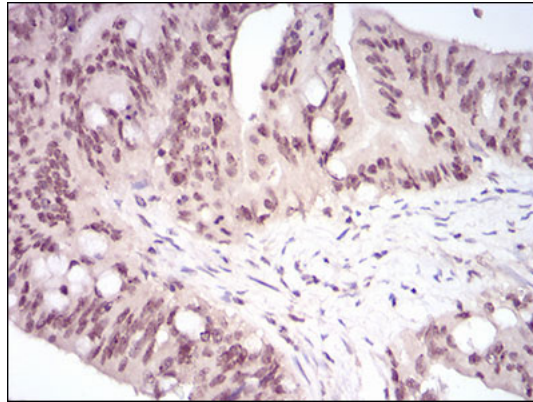


Figure 4: Immunohistochemical analysis of paraffin-embedded rectum cancer tissues using HSF1 mouse mAb with DAB staining.

HSF1 Antibody - Background

Calmegein is a testis-specific endoplasmic reticulum chaperone protein. CLGN may play a role in spermatogenesis and infertility. ; ;

HSF1 Antibody - References

1. Cell. 2012 Aug 3;150(3):549-62.2. Cancer Lett. 2012 May 28;318(2):145-53.