

HSF1 Sumoylation Site Antibody
Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP2501a

Specification

HSF1 Sumoylation Site Antibody - Product Information

Application	IF, WB,E
Primary Accession	Q00613
Other Accession	Q08DJ8
Reactivity	Human, Mouse
Predicted	Bovine
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	57260
Antigen Region	278-309

HSF1 Sumoylation Site Antibody - Additional Information

Gene ID 3297

Other Names

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

Target/Specificity

This HSF1 Sumoylation Site antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 278-309 amino acids from human HSF1 Sumoylation Site.

Dilution

IF~~1:10~50

WB~~1:1000

Format

Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.

Storage

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

Precautions

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

HSF1 Sumoylation Site 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](#), 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

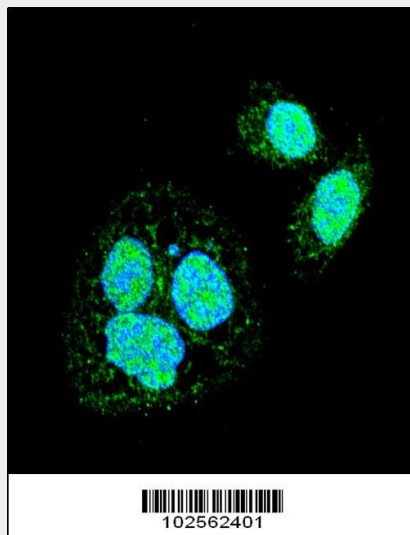
Nucleus. Cytoplasm. Nucleus, nucleoplasm. Cytoplasm, perinuclear region. Cytoplasm, cytoskeleton, spindle pole. Cytoplasm, cytoskeleton, microtubule organizing center, centrosome Chromosome, centromere, kinetochore Note=The monomeric form is cytoplasmic in unstressed cells (PubMed:[26159920](#), PubMed:[8455624](#)). 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](#)).

HSF1 Sumoylation Site Antibody - Protocols

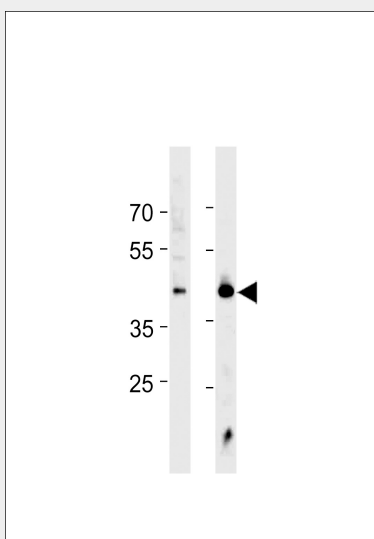
Provided below are standard protocols that you may find useful for product applications.

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

HSF1 Sumoylation Site Antibody - Images



Confocal immunofluorescent analysis of HSF1 Sumoylation Site Antibody (Cat#AP2501a) with HeLa cells followed by Alexa Fluor 488-conjugated goat anti-rabbit IgG (green). DAPI was used to stain the cell nuclei (blue).



HSF1 Antibody (Cat. #AP2501a) western blot analysis in Jurkat cell line and mouse heart tissue

lysates (35ug/lane). This demonstrates the HSF1 antibody detected the HSF1 protein (arrow).

HSF1 Sumoylation Site Antibody - Background

Heat shock transcription factor 1 (HSF1) mediates the induction of heat shock protein gene expression in cells exposed to elevated temperature and other stress conditions. In response to stress, HSF1 acquires DNA-binding ability and localizes to nuclear stress granules. SUMO modification of HSF1 converts HSF1 to the DNA-binding form. HSF1 colocalizes with SUMO-1 in nuclear stress granules, which is prevented by mutation of the HSF1 lysine targeted for sumoylation.

HSF1 Sumoylation Site Antibody - References

- Hilgarth, et al., *Biochem Biophys Res Commun.* 2003 Mar 28;303(1):196-200.
He, H., et al., *J. Biol. Chem.* 278(37):35465-35475 (2003).
Wang, X., et al., *Mol. Cell. Biol.* 23(17):6013-6026 (2003).
Ignatenko, N.A., et al., *Exp. Cell Res.* 288(1):1-8 (2003).
Soncin, F., et al., *Biochem. Biophys. Res. Commun.* 303(2):700-706 (2003).