

PRODUCT INFORMATION



Hsf1 (human, recombinant)

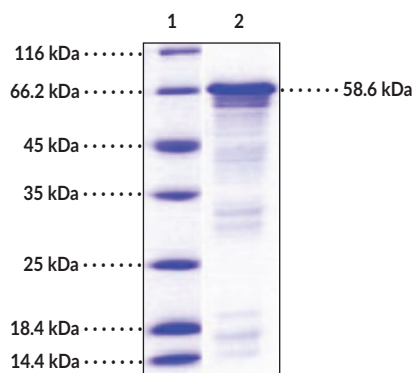
Item No. 40253

Overview and Properties

Synonyms: Heat Shock Factor 1, Heat Shock Transcription Factor 1, HSTF1
Source: Recombinant human N-Terminal His-tagged Hsf1 expressed in *E. coli*
Amino Acids: 2-529
Uniprot No.: Q00613-1
Molecular Weight: 58.6 kDa
Storage: -80°C (as supplied)
Stability: ≥1 year
Purity: ≥70% estimated by SDS-PAGE
Supplied in: Lyophilized from sterile PBS, pH 7.0
Bioactivity: See figures for details

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



Lane 1: MW Markers
Lane 2: Hsf1

SDS-PAGE Analysis of Hsf1. This protein has a calculated molecular weight of 58.6 kDa. It has an apparent molecular weight of approximately 67 kDa by SDS-PAGE under reducing conditions due to apparent post-translational modifications.

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
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Description

Heat-shock factor 1 (Hsf1) is a transcription factor involved in the heat-shock response.¹ It is composed of an N-terminal DNA-binding domain, a hydrophobic repeat region (HR-A/B), which mediates oligomerization required for DNA binding, a D domain, a regulatory domain, a repeat region (HR-C), which prevents oligomerization by binding to HR-A/B in its inactive form, and a C-terminal transactivation domain.¹⁻³ When inactive, Hsf1 is monomeric and bound to heat shock proteins (HSPs) but, upon induction of the heat-shock response, it forms homotrimers, is translocated to the nucleus, and binds to heat-shock elements (HSEs) in the promoter region of target genes, such as HSPs.¹ Hsf1 is ubiquitously expressed and activated by heat shock, as well as a variety of other factors, including inflammation, ischemia, infection, and aging.^{1,4} It is involved in transactivation of genes involved in these processes, as well as genes involved in development, metabolism, and carcinogenesis.⁴ Hsf1 is constitutively active in certain cancers and its deficiency in rodent models is associated with a reduction in tumor formation.^{2,4} Protein levels of Hsf1 are increased in breast cancer tumors and this overexpression, as well as nuclear localization of Hsf1, is associated with reduced survival.² Cayman's Hsf1 (human, recombinant) protein was synthesized from a DNA sequence encoding the mature form of species protein (Asp2-Ser529) with an N-terminal translation-initiating methionine (Met1). The expressed protein consists of 539 amino acids, has a calculated molecular weight of 58.6 kDa, and a predicted N-terminus of Met1. By SDS-PAGE, under reducing conditions, the apparent molecular mass of the protein is approximately 67 kDa potentially due to post-translational modifications or other experimental conditions.

References

1. Ramos, C.H.I. and Quel, N.G. Heat Shock Factor (HSF): The promoter of chaperone genes. A mini review. *Curr. Proteomics* **15(1)**, (2018).
2. Yan, P., Guzman, M.L., Peter, R.I., *et al.* Chaperome networks - redundancy and implications for cancer treatment. *HSF1 and molecular chaperones in biology and cancer*. Mendillo, M.L., Pincus, D., and Sherz-Shouval, R., editors, Springer (2020).
3. Vihervaara, A. and Sistonen, L. HSF1 at a glance. *J. Cell Sci.* **127(Pt 2)**, 261-266 (2014).
4. Li, J., Labbadia, J., and Morimoto, R.I. Rethinking HSF1 in stress, development and organismal health. *Trends Cell Biol.* **27(12)**, 895-905 (2017).

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