

Heat Shock Factor 1 (HSF1) Ab-1 (Clone 4B4)

Rat Monoclonal Antibody

Cat. #RT-405-P0, -P1, or -P (0.1ml, 0.5ml, or 1.0ml at 200µg/ml) (Purified Ab with BSA and Azide)

Cat. #RT-405-P1ABX or -PABX (0.1ml or 0.2ml at 1.0mg/ml) (Purified Ab without BSA and Azide)

Cat. #RT-405-PCL (0.1ml) (Positive Control for Western Blot)

Please note this data sheet has been changed effective December 8, 2011

Description: HSF1 responds to cellular stress signals such as heat, heavy metals, and oxidative reagents; binds to heat shock response elements (HSEs) in the upstream region of heat shock gene and activates their transcription. Some laboratories have reported that the constitutive, non-DNA binding, monomeric form of inactive HSF1 is located in the cytoplasm. Upon activation, HSF1 is trimerized and is localized in nucleus where it binds DNA.

Mol. Wt. of Antigen: 70-85kDa (depending upon the source and state of cells)

Epitope: aa 425-439 of mouse HSF1

Species Reactivity: Human, Mouse, and Rat. Others not known.

Clone Designation: 4B4

Ig Isotype: IgG₁

Immunogen: Recombinant mouse HSF1 protein (aa1-503).

Applications and Suggested Dilutions:

- Gel Supershift (Use Ab at 1mg/ml) (**NEOMARKERS'** Ab-4 is better)
- Immunofluorescence
- Immunoprecipitation (Native only) (Use Protein G) (Ab 2µg/mg protein lysate)
- Western Blotting (Ab 1-2µg/ml for 2hrs at RT)

The optimal dilution for a specific application should be determined by the investigator.

Positive Control: LS174T or MAD109 cells

Cellular Localization: Nuclear

Supplied As: 200µg/ml antibody purified from ascites fluid by ammonium sulphate precipitation and prepared in 10mM PBS, pH 7.4, with 0.2% BSA & 0.09% azide. Also available without BSA and azide at 1mg/ml.

Storage and Stability:

Ab with sodium azide is stable for 24 months when stored at 2-8°C. Antibody WITHOUT sodium azide is stable for 36 months when stored at below 0°C.

Suggested References:

1. Baler, R., et al. Mol Cell Biol, 13:2486-96.
2. Clos, J., et al. Cell, 63:1085-97.

Limitations and Warranty:

Our products are intended FOR RESEARCH USE ONLY and are not approved for clinical diagnosis, drug use or therapeutic procedures. No products are to be construed as a recommendation for use in violation of any patents. We make no representations, warranties or assurances as to the accuracy or completeness of information provided on our data sheets and website. Our warranty is limited to the actual price paid for the product. NeoMarkers is not liable for any property damage, personal injury, time or effort or economic loss caused by our products.

Material Safety Data:

This product is not licensed or approved for administration to humans or to animals other than the experimental animals. Standard Laboratory Practices should be followed when handling this material. The chemical, physical, and toxicological properties of this material have not been thoroughly investigated. Appropriate measures should be taken to avoid skin and eye contact, inhalation, and ingestion. The material contains 0.09% sodium azide as a preservative. Although the quantity of azide is very small, appropriate care should be taken when handling this material as indicated above. The National Institute of Occupational Safety and Health has issued a bulletin citing the potential explosion hazard due to the reaction of sodium azide with copper, lead, brass, or solder in the plumbing systems. Sodium azide forms hydrazoic acid in acidic conditions and should be discarded in a large volume of running water to avoid deposits forming in metal drainage pipes.



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For Research Use Only

Additional Suggested References:

- Cotto, J. J.; Kline, M.; Morimoto, R.I. (1996). Activation of heat shock factor 1 DNA binding precedes stress-induced serine phosphorylation. Evidence for a multistep pathway of regulation. *Journal of Biological Chemistry*, 271(7):3355-8.
- Craig, E. A., Gambill, B. D., and Nelson, R. J. (1993). Heat shock proteins: molecular chaperones of protein biogenesis. *Microbiological Rev*, 5:402-14.
- Edington, B. V., Whelan, S. A., and Hightower, L. E. (1989). Inhibition of heat shock (stress) protein induction by deuterium oxide and glycerol: additional support for the abnormal protein hypothesis of induction. *J Cell Phys*, 139:219-28.
- Georgopoulos, C., and Welch, W. J. (1993). Role of the major heat shock proteins as molecular chaperones. *Annual Review of Cell Biol*, 9:601-34.
- Gething, M. J., and Sambrook, J. (1992). Protein folding in the cell. *Nature*, 355:33-45.
- Hartl, F. U. (1996). Molecular chaperones in cellular protein folding. *Nature*, 381:571-9.
- Hendrick, J. P., and Hartl, F. U. (1993). Molecular chaperone functions of heat-shock proteins. *Annual Review of Biochem*, 62:349-84.
- Hendrick, J. P., and Hartl, F. U. (1995). The role of molecular chaperones in protein folding. *FASEB Journal*, 9:1559-69.
- Hightower, L. E. (1991). Heat shock, stress proteins, chaperones, and proteotoxicity. [Review]. *Cell*, 66:191-7.
- Jurivich, D. A., Sistonen, L., Kroes, R. A., and Morimoto, R. I. (1992). Effect of sodium salicylate on the human heat shock response. *Science* 255, 1243-5.
- Mezger, V., Rallu, M., Morimoto, R. I., Morange, M., and Renard, J. P. (1994). Heat shock factor 2-like activity in mouse blastocysts. *Developmental Biology*, 166:819-22.
- Morimoto, R. I., Jurivich, D. A., Kroeger, P. E., Mathur, S. K., Murphy, S. P., Nakai, A., Sarge, K., Abravaya, K., and Sistonen, L. T. (1994). Regulation of Heat Shock Gene Transcription by a Family of Heat Shock Factors. In *The Biology of Heat Shock Proteins and Molecular Chaperones*, R. I. Morimoto, A. Tissieres and C. Georgopoulos, eds. (Cold Spring Harbor, N.Y.: Cold Spring Harbor Laboratory Press), 417-456.
- Murphy, S. P., Gorzowski, J., Sarge, K. D., and Phillips, B. (1994). Characterization of constitutive HSF2 DNA-binding activity in mouse embryonal carcinoma cells. *Molecular and Cellular Biology*, 14:5309-17.
- Nakai, A., and Morimoto, R. I. (1993). Characterization of a novel chicken heat shock transcription factor, heat shock factor 3, suggests a new regulatory pathway. *Molecular and Cellular Biology*, 13:1983-97.
- Parsell, D. A., and Lindquist, S. (1993). The function of heat-shock proteins in stress tolerance: degradation and reactivation of damaged proteins. *Annual Review of Genetics*, 27:437-96.
- Pelham, H. R. (1986). Speculations on the functions of the major heat shock and glucose-regulated proteins. *Cell*, 46:959-61.
- Peteranderl, R., and Nelson, H. C. (1992). Trimerization of the heat shock transcription factor by a triple-stranded alpha-helical coiled-coil. *Biochemistry*, 31:12272-6.
- Rabindran, S. K., Giorgi, G., Clos, J., and Wu, C. (1991). Molecular cloning and expression of a human heat shock factor, HSF1. *Proceedings of the National Academy of Sciences of the United States of America*, 88:6906-10.
- Rabindran, S. K., Haroun, R. I., Clos, J., Wisniewski, J., and Wu, C. (1993). Regulation of heat shock factor trimer formation: role of a conserved leucine zipper. *Science*, 259:230-4.
- Sarge, K. D., Murphy, S. P., and Morimoto, R. I. (1993). Activation of heat shock gene transcription by heat shock factor 1 involves oligomerization, acquisition of DNA-binding activity, and nuclear localization and can occur in the absence of stress [published errata appear in *Mol Cell Biol*, 1993 May; 13(5):3122-3 and 1993 Jun; 13(6):3838-9]. *Molecular & Cellular Biology*, 13:1392-407.
- Sarge, K. D., Park, S. O., Kirby, J. D., Mayo, K. E., and Morimoto, R. I. (1994). Expression of heat shock factor 2 in mouse testis: potential role as a regulator of heat-shock protein gene expression during spermatogenesis. *Biology of Reprod*, 50: 1334-43.
- Sarge, K. D., Zimarino, V., Holm, K., Wu, C., and Morimoto, R. I. (1991). Cloning and characterization of two mouse heat shock factors with distinct inducible and constitutive DNA-binding ability. *Genes and Development*, 5:1902-11.
- Scharf, K. D., Rose, S., Zott, W., Schoff, F., and Nover, L. (1990). Three tomato genes code for heat stress transcription factors with a remarkable degree of homology to the DNA-binding domain of the yeast HSF. *EMBO J*, 9:4495-4501.
- Schuetz, T. J., Gallo, G. J., Sheldon, L., Tempst, P., and Kingston, R. E. (1991). Isolation of a cDNA for HSF2: evidence for two heat shock factor genes in humans. *Proceedings of the National Academy of Sciences of the United States of America*, 88:6911-5.
- Sistonen, L., Sarge, K. D., and Morimoto, R. I. (1994). Human heat shock factors 1 and 2 are differentially activated and can synergistically induce hsp70 gene transcription. *Molecular and Cellular Biology*, 14:2087-99.
- Sistonen, L., Sarge, K. D., Phillips, B., Abravaya, K., and Morimoto, R. I. (1992). Activation of heat shock factor 2 during hemin-induced differentiation of human erythroleukemia cells. *Molecular and Cellular Biology*, 12:4104-11.



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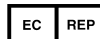
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27. Sorger, P. K., Lewis, M. J., and Pelham, H. R. (1987). Heat shock factor is regulated differently in yeast and HeLa cells. *Nature*, 329:81-4.
28. Sorger, P. K., and Nelson, H. C. (1989). Trimerization of a yeast transcriptional activator via a coiled-coil motif. *Cell*, 59:807-13.



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