

HSF1-mediated gene expression

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Introduction

Reactome is open-source, open access, manually curated and peer-reviewed pathway database. Pathway annotations are authored by expert biologists, in collaboration with Reactome editorial staff and cross-referenced to many bioinformatics databases. A system of evidence tracking ensures that all assertions are backed up by the primary literature. Reactome is used by clinicians, geneticists, genomics researchers, and molecular biologists to interpret the results of high-throughput experimental studies, by bioinformaticians seeking to develop novel algorithms for mining knowledge from genomic studies, and by systems biologists building predictive models of normal and disease variant pathways.

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Literature references

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Sidiropoulos, K., Viteri, G., Sevilla, C., Jupe, S., Webber, M., Orlic-Milacic, M. et al. (2017). Reactome enhanced pathway visualization. *Bioinformatics*, 33, 3461-3467. [↗](#)

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Reactome database release: 89

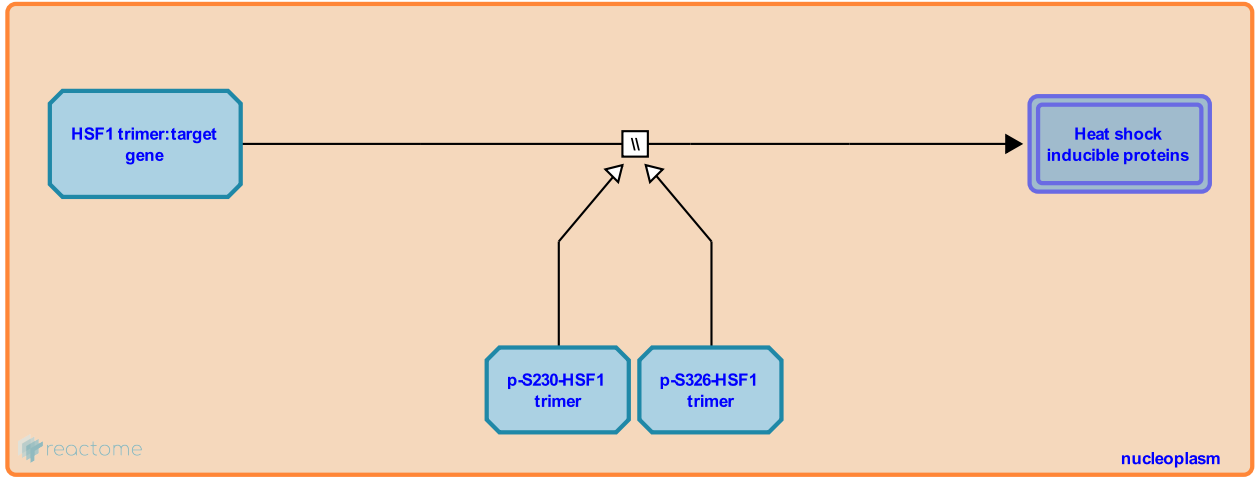
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HSF1-mediated gene expression ↗

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Combination of chromatin immunoprecipitation (ChIP) microarray analysis and time course gene expression microarray analysis with and without siRNA-mediated inhibition of HSF1 showed that human HSF1 can induce the expression of different sets of target genes to maintain a wide range of biological processes (e.g., anti-apoptosis, RNA splicing, ubiquitination)(Page TG et al. 2006; Vihervaara A. et al. 2013). However, HSF1 is best known for rapid stress-induced upregulation of certain genes related to protein folding, such as HSPA1A/HSP70, HSPC/HSP90, HSPB1/HSP27, and DNAJB1/HSP40 (Mosser DD et al. 1988; Trinklein ND et al. 2004a,b; Page TG et al. 2006; Vihervaara A. et al. 2013).

In the nucleus acetylation of Histone H3 is linked to the function of the Elongator complex in transcription (Kim JH et al. 2002). Elongator complex protein 3 (ELP3), a catalytic acetyltransferase subunit of the Elongator complex, has been reported to regulate the transcription of HSP70 gene, and the histone acetyltransferase (HAT) domain of ELP3 is essential for this function (Han Q et al. 2007; Li F et al. 2001).

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Editions

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