

HSF2 siRNA (h): sc-35613

BACKGROUND

Prokaryotic and eukaryotic cells respond to thermal and chemical stress by inducing a group of genes collectively designated heat shock genes. In eukaryotes, this gene expression is regulated primarily at the transcription level. Heat shock transcription factors (HSF, also designated HSTF) 1 and 2 are involved in this regulation. HSF1 and HSF2 are upregulated by estrogen at both the mRNA and protein level. HSF1 is normally found as a monomer whose transcriptional activity is repressed by constitutive phosphorylation. Upon activation, HSF1 forms trimers, gains DNA binding activity and is translocated to the nucleus. HSF2 activity is associated with differentiation and development; like HSF1, it binds DNA as a trimer. Both HSF1 and HSF2 are known to be induced by proteasome inhibitors of the ubiquitin pathway.

REFERENCES

1. Tanguay, R.M. 1988. Transcriptional activation of heat shock genes in eukaryotes. *Biochem. Cell Biol.* 66: 584-593.
2. Yang, X., et al. 1995. Estrogen dependent expression of heat shock transcription factor: implications for uterine synthesis of heat shock proteins. *J. Steroid Biochem. Mol. Biol.* 52: 415-419.
3. Wyman, C., et al. 1995. Determination of HSF2 stoichiometry at looped DNA complexes using scanning force microscopy. *EMBO J.* 14: 117-123.
4. Rallu, M., et al. 1997. Function and regulation of HSF2 during mouse embryogenesis. *Proc. Natl. Acad. Sci. USA* 94: 2392-2397.
5. Mathew, A., et al. 1998. Heat shock response and protein degradation: regulation of HSF2 by the ubiquitin-proteasome pathway. *Mol. Cell. Biol.* 18: 5091-5098.

CHROMOSOMAL LOCATION

Genetic locus: HSF2 (human) mapping to 6q22.31.

PRODUCT

HSF2 siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see HSF2 shRNA Plasmid (h): sc-35613-SH and HSF2 shRNA (h) Lentiviral Particles: sc-35613-V as alternate gene silencing products.

For independent verification of HSF2 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-35613A, sc-35613B and sc-35613C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNases and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

HSF2 siRNA (h) is recommended for the inhibition of HSF2 expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 μ M in 66 μ l. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

HSF2 (G-11): sc-74529 is recommended as a control antibody for monitoring of HSF2 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker[™] Molecular Weight Standards: sc-2035, UltraCruz[®] Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz[®] Mounting Medium: sc-24941 or UltraCruz[®] Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor HSF2 gene expression knockdown using RT-PCR Primer: HSF2 (h)-PR: sc-35613-PR (20 μ l, 419 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Hocsak, E., et al. 2017. PARP inhibition protects mitochondria and reduces ROS production via PARP-1-ATF4-MKP-1-MAPK retrograde pathway. *Free Radic. Biol. Med.* 108: 770-784.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.