



HSP 90 α siRNA (h): sc-29353

BACKGROUND

The heat shock response was first described for *Drosophila* salivary gland cells and morphologically consists of a change in their polytene chromosome puffing patterns that involves *de novo* synthesis of a few proteins. Similar heat shock proteins were later discovered in bacterial chicken and mammalian cells, and have been subsequently studied in other organisms. A series of proteins including HSP 90, HSP 70, HSP 20-30 and ubiquitin are induced by insults such as temperature shock, chemicals and other environmental stress. A major function of HSP 90 and other HSPs is to act as molecular chaperones. HSP 90 forms a complex with glucocorticoid receptor (GR), rendering the non ligand-bound receptor transcriptionally inactive. HSP 90 binds the GR as a heterocomplex composed of either HSP 56 or Cyclophilin D, forming an aporeceptor complex. HSP 90 also exists as a dimer with other proteins such as p60/STI1 and p23, forming an apo-receptor complex with estrogen and androgen receptors.

REFERENCES

1. Wu, J.M., et al. 2003. PKC ϵ is a unique regulator for HSP 90 β gene in heat shock response. *J. Biol. Chem.* 278: 51143-51149.
2. Whitesell, L., et al. 2005. HSP 90 and the chaperoning of cancer. *Nat. Rev. Cancer* 5: 761-772.
3. Cowen, L.E., et al. 2005. HSP 90 potentiates the rapid evolution of new traits: drug resistance in diverse fungi. *Science* 309: 2185-2189.

CHROMOSOMAL LOCATION

Genetic locus: HSP90AA1 (human) mapping to 14q32.31.

PRODUCT

HSP 90 α 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 HSP 90 α shRNA Plasmid (h): sc-29353-SH and HSP 90 α shRNA (h) Lentiviral Particles: sc-29353-V as alternate gene silencing products.

For independent verification of HSP 90 α (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-29353A, sc-29353B and sc-29353C.

APPLICATIONS

HSP 90 α siRNA (h) is recommended for the inhibition of HSP 90 α expression in human cells.

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.

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

HSP 90 α (F-2): sc-515081 is recommended as a control antibody for monitoring of HSP 90 α 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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).
- 3) 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.
- 4) Immunohistochemistry: use m-IgG κ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor HSP 90 α gene expression knockdown using RT-PCR Primer: HSP 90 α (h)-PR: sc-29353-PR (20 μ l, 497 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Tsou, Y.L., et al. 2013. Heat shock protein 90: role in enterovirus 71 entry and assembly and potential target for therapy. *PLoS ONE* 8: e77133.
2. Al-Alwan, L.A., et al. 2014. CXCL1 inhibits airway smooth muscle cell migration through the decoy receptor Duffy antigen receptor for chemokines. *J. Immunol.* 193: 1416-1426.
3. Gupta, S., et al. 2018. Heat-shock protein-90 prolongs septic neutrophil survival by protecting c-Src kinase and caspase-8 from proteasomal degradation. *J. Leukoc. Biol.* 103: 933-944.
4. Koh, M., et al. 2024. ANXA2 (annexin A2) is crucial to ATG7-mediated autophagy, leading to tumor aggressiveness in triple-negative breast cancer cells. *Autophagy* 20: 659-674.

RESEARCH USE

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