SANTA CRUZ BIOTECHNOLOGY, INC.

HSP 90α/β siRNA (m): sc-35610

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 stres 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 comiplex. 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 90β 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.

PRODUCT

HSP 90α/β siRNA (m) is a pool of 4 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see HSP 90α/β shRNA Plasmid (m): sc-35610-SH and HSP 90α/β shRNA (m) Lentiviral Particles: sc-35610-V as alternate gene silencing products.

For independent verification of HSP 90α/β (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-35610A, sc-35610B, sc-35610C and sc-35610D.

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 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

HSP 90α/β siRNA (m) is recommended for the inhibition of HSP 90α/β expression in mouse 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 µM in 66 µl. 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 90α/β (F-8): sc-13119 is recommended as a control antibody for monitoring of HSP 90α/β 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).

SELECT PRODUCT CITATIONS

1. Lin, J.J. and Hemenway, C.S. 2010. HSP 90 directly modulates the spatial distribution of AF9/MLLT3 and affects target gene expression. J. Biol. Chem. 285: 11966-11973.
2. Chiu, W.T., et al. 2011. Inhibition of HSP 90-dependent telomerase activity in amyloid β-induced apoptosis of cerebral endothelial cells. J. Cell. Physiol. 226: 2041-2051.
3. Gorska, M., et al. 2013. Geldanamycin-induced osteosarcoma cell death is associated with hyperacetylation and loss of mitochondrial pool of heat shock protein 60 (HSP 60). PLoS ONE 8: e71135.
4. Saito, K., et al. 2015. Heat shock protein 90 associates with Toll-like receptors 7/9 and mediates self-nucleic acid recognition in SLE. Eur. J. Immunol. 45: 2028-2041.
5. Vashist, S., et al. 2015. Molecular chaperone HSP 90 is a therapeutic target for noroviruses. J. Virol. 89: 6352-6363.
6. Gallon, E., et al. 2015. Triblock copolymer nanovesicles for pH-responsive targeted delivery and controlled release of siRNA to cancer cells. Biomacromolecules 16: 1924-1937.
7. Liu, X., et al. 2016. HSP 90 inhibits apoptosis and promotes growth by regulating HIF-1α abundance in hepatocellular carcinoma. Int. J. Mol. Med. 37: 825-835.
8. Sha, L., et al. 2017. Pharmacologic inhibition of HSP 90 to prevent GLT-1 degradation as an effective therapy for epilepsy. J. Exp. Med. 214: 547-563.
9. Choi, M. and Bonanno, J.A. 2021. Mitochondrial targeting of the ammonia-sensitive uncoupler SLC4A11 by the chaperone-mediated carrier pathway in corneal endothelium. Invest. Ophthalmol. Vis. Sci. 62: 4.

RESEARCH USE

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