SANTA CRUZ BIOTECHNOLOGY, INC.

HSPB7 siRNA (h): sc-78757

BACKGROUND

The heat shock proteins (HSPs) comprise a group of highly conserved, abundantly expressed proteins with diverse functions, including the assembly and sequestering of multiprotein complexes, transportation of nascent polypeptide chains across cellular membranes and regulation of protein folding. Heat shock proteins (also known as molecular chaperones) fall into six general families: HSP 90, HSP 70, HSP 60, the small HSPs, the immunophilins and the HSP 110 family. HSPB7 (heat shock 27 kDa protein family, member 7), also known as cvHSP (cardiovascular heat shock protein) or Heat shock protein β-7, is a member of the small HSP (sHSP) family expressed in heart and skeletal muscle. Members of the sHSP family contain a conserved C-terminal α-crystallin domain and typically function in homo- or heteromeric complexes. The sHSPs bind to denatured proteins and are responsible for preventing the aggregation of these proteins. In response to muscle fiber transformation and in muscular dystrophy, the expression levels of HSPB7 are drastically increased, suggesting that HSPB7 may be a useful target in therapeutic strategies for preventing age-related muscle wasting.

REFERENCES

1. Krief, S., et al. 1999. Identification and characterization of cvHsp. A novel human small stress protein selectively expressed in cardiovascular and insulin-sensitive tissues. J. Biol. Chem. 274: 36592-36600.
2. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 610692. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Kappe, G., et al. 2003. The human genome encodes 10 α-crystallin-related small heat shock proteins: HSPB1-10. Cell Stress Chaperones 8: 53-61.
4. Fontaine, J.M., et al. 2003. The sperm outer dense fiber protein is the 10th member of the superfamily of mammalian small stress proteins. Cell Stress Chaperones 8: 62-69.
5. Sun, X., et al. 2004. Interaction of human HSP22 (HSPB8) with other small heat shock proteins. J. Biol. Chem. 279: 2394-2402.
6. Fontaine, J.M., et al. 2005. Interactions of HSP22 (HSPB8) with HSP20, αB-crystallin, and HSPB3. Biochem. Biophys. Res. Commun. 337: 1006-1011.

CHROMOSOMAL LOCATION

Genetic locus: HSPB7 (human) mapping to 1p36.13.

PRODUCT

HSPB7 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see HSPB7 shRNA Plasmid (h): sc-78757-SH and HSPB7 shRNA (h) Lentiviral Particles: sc-78757-V as alternate gene silencing products.

For independent verification of HSPB7 (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-78757A, sc-78757B and sc-78757C.

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

HSPB7 siRNA (h) is recommended for the inhibition of HSPB7 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 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

HSPB7 (F-4): sc-393739 is recommended as a control antibody for monitoring of HSPB7 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 HSPB7 gene expression knockdown using RT-PCR Primer: HSPB7 (h)-PR: sc-78757-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.