SANTA CRUZ BIOTECHNOLOGY, INC.

HSP 47 siRNA (h): sc-35600

BACKGROUND

Heat shock proteins (HSPs) are ubiquitously expressed in all organisms. HSP 47, also known as collagen 1, serpinh1, collagen-binding protein 1 (CBP1) and gp46, is expressed in smooth muscle cells, specifically in the interstitial space between tubules, vascular smooth muscle and medullary rays. It is expressed constitutively in cells that synthesize collagen and is involved in Collagen Type I biosynthesis. HSP 47 plays a vital role in folding and assembling collagen. A procollagen-specific molecular chaperone, HSP 47 resides in the endoplasmic reticulum of procollagen-producing cells and is essential for secretion of procollagen from cells. After insult, it acts as a stress response molecule to sequester abnormal procollagen. HSP 47 synthesis is induced by TGFβ and IL-1β.

REFERENCES

1. Verrico, A.K., et al. 2001. *In vivo* expression of the collagen-related heat shock protein HSP 47, following hyperthermia or photodynamic therapy. Lasers Med. Sci. 16: 192-198.
2. Keagle, J.N., et al. 2001. Expression of heat shock proteins in a linear rodent wound. Wound Repair Regen. 9: 378-385.
3. Kaur, J., et al. 2001. Coexpression of colligin and collagen in oral submucous fibrosis: plausible role in pathogenesis. Oral Oncol. 37: 282-287.
4. Stacchiotti, A., et al. 2001. Distribution of heat shock proteins in kidneys of rats after immunosuppressive treatment with cyclosporine A. Acta Histochem. 103: 167-177.
5. Murakami, S., et al. 2001. Heat shock protein (HSP) 47 and collagen are upregulated during neointimal formation in the balloon-injured rat carotid artery. Atherosclerosis 157: 361-368.
6. Tsukimi, Y., et al. 2001. Involvement of heat shock proteins in the healing of acetic acid-induced gastric ulcers in rats. J. Physiol. Pharmacol. 52: 391-406.
7. Sasaki, H., et al. 2002. Induction of heat shock protein 47 synthesis by TGFβ and IL-1β via enhancement of the heat shock element binding activity of heat shock transcription factor 1. J. Immunol. 168: 5178-5183.

CHROMOSOMAL LOCATION

Genetic locus: SERPINH1 (human) mapping to 11q13.5.

PRODUCT

HSP 47 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 HSP 47 shRNA Plasmid (h): sc-35600-SH and HSP 47 shRNA (h) Lentiviral Particles: sc-35600-V as alternate gene silencing products.

For independent verification of HSP 47 (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-35600A, sc-35600B and sc-35600C.

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 47 siRNA (h) is recommended for the inhibition of HSP 47 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

HSP 47 (G-12): sc-5293 is recommended as a control antibody for monitoring of HSP 47 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 HSP 47 gene expression knockdown using RT-PCR Primer: HSP 47 (h)-PR: sc-35600-PR (20 µl, 426 bp). 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.