SANTA CRUZ BIOTECHNOLOGY, INC.

HSPB2 siRNA (m): sc-146101

BACKGROUND

The heat shock proteins (HSPs) comprise a group of highly conserved, abundantly expressed proteins with diverse functions, including the assembly and sequestering of multi-protein complexes, transportation of nascent polypeptide chains across cellular membranes and regulation of protein folding. HSPB2 (heat shock 27 kDa protein 2), also known as HSP 27 or MKBP, is a 182 amino acid protein that belongs to the heat shock protein family and is expressed preferentially in heart and skeletal muscle. Localized to mitochondria, HSPB2 functions as an ATP-dependent chaperone protein that plays a role in the refolding of denatured proteins and may also interact with the Actin cytoskeleton and prevent apoptotic cell death. HSPB2 is abundantly expressed in several cancer cell lines, suggesting that HSPB2 may be an important factor in tumor transformation and metastasis.

REFERENCES

1. Suzuki, A., et al. 1998. MKBP, a novel member of the small heat shock protein family, binds and activates the myotonic dystrophy protein kinase. J. Cell Biol. 140: 1113-1124.
2. Concannon, C.G., et al. 2003. On the role of Hsp27 in regulating apoptosis. Apoptosis 8: 61-70.
3. Wen, F.C., et al. 2003. Down-regulation of heat shock protein 27 in neuronal cells and non-neuronal cells expressing mutant ataxin-3. FEBS Lett. 546: 307-314.
4. Mao, H., et al. 2003. Hsp72 inhibits focal adhesion kinase degradation in ATP-depleted renal epithelial cells. J. Biol. Chem. 278: 18214-18220.
5. Parcellier, A., et al. 2003. HSP27 is a ubiquitin-binding protein involved in I-κBα proteasomal degradation. Mol. Cell. Biol. 23: 5790-5802.
6. An, S.S., et al. 2004. Role of heat shock protein 27 in cytoskeletal remodeling of the airway smooth muscle cell. J. Appl. Physiol. 96: 1701-1713.
7. Shimura, H., et al. 2004. Binding of Tau to heat shock protein 27 leads to decreased concentration of hyperphosphorylated Tau and enhanced cell survival. J. Biol. Chem. 279: 17957-17962.
8. Kato, H., et al. 2008. HSP27 phosphorylation is correlated with ADP-induced platelet granule secretion. Arch. Biochem. Biophys. 475: 80-86.
9. Havasi, A., et al. 2008. Hsp27 inhibits Bax activation and apoptosis via a phosphatidylinositol 3-kinase-dependent mechanism. J. Biol. Chem. 283: 12305-12313.

CHROMOSOMAL LOCATION

Genetic locus: Hspb2 (mouse) mapping to 9 A5.3.

PRODUCT

HSPB2 siRNA (m) is a target-specific 19-25 nt siRNA 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 HSPB2 shRNA Plasmid (m): sc-146101-SH and HSPB2 shRNA (m) Lentiviral Particles: sc-146101-V as alternate gene silencing products.

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

HSPB2 siRNA (m) is recommended for the inhibition of HSPB2 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

HSPB2 (F-9): sc-514154 is recommended as a control antibody for monitoring of HSPB2 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 HSPB2 gene expression knockdown using RT-PCR Primer: HSPB2 (m)-PR: sc-146101-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.