SANTA CRUZ BIOTECHNOLOGY, INC.

HSP 40-4 siRNA (m): sc-60817

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The Power to Question

BACKGROUND

DnaJ-like proteins interact with HSP 70 molecular chaperones and function to facilitate protein folding and mitochondrial protein import. HSP 40-4, also known as HDJ2, is the human DnaJ homolog that functions as a co-chaperone with a cysteine-rich zinc finger domain. The cellular redox enzyme thioredoxin interacts with HSP 40-4, and oxidation and reduction reversibly regulate HSP 40-4 function in response to the changing redox states of the cell. The zinc finger domain of HSP 40-4 may act as a redox sensor of chaperone-mediated protein-folding machinery, since HSP 40-4 inactivation leads to the oxidation of cysteine thiols and a simultaneous release of coordinated zinc. Loss of the HSP 40-4 protein may be linked to severe defects in spermatogenesis that involve aberrant androgen signaling.

REFERENCES

1. Chellaiah, A., et al. 1993. Cloning of a unique human homologue of the *Escherichia coli* DNAJ heat shock protein. Biochim. Biophys. Acta 1174: 111-113.
2. Kanazawa, M., et al. 1997. HSDJ, a human homolog of DnaJ, is farnesylated and is involved in protein import into mitochondria. J. Biochem. 121: 890-895.
3. Hoe, K.L., et al. 1998. Isolation of a new member of DnaJ-like heat shock protein 40 (Hsp40) from human liver. Biochim Biophys Acta 1383: 4-8.
4. Ohtsuka, K., et al. 2000. Mammalian HSP40/DNAJ homologs: cloning of novel cDNAs and a proposal for their classification and nomenclature. Cell Stress Chaperones 5: 98-112.
5. Terada, K., et al. 2000. Human DnaJ homologs dj2 and dj3, and bag-1 are positive cochaperones of hsc70. J. Biol. Chem. 275: 24728-24734.
6. Nakanishi, K., et al. 2004. Localization and function in endoplasmic reticulum stress tolerance of ERdj3, a new member of Hsp40 family protein. Cell Stress Chaperones 9: 253-264.
7. SWISS-PROT/TrEMBL (P25685). World Wide Web URL: http://www.expasy.ch/sprot/sprot-top.html

CHROMOSOMAL LOCATION

Genetic locus: Dnaja1 (mouse) mapping to 4 A5.

PRODUCT

HSP 40-4 siRNA (m) 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 40-4 shRNA Plasmid (m): sc-60817-SH and HSP 40-4 shRNA (m) Lentiviral Particles: sc-60817-V as alternate gene silencing products.

For independent verification of HSP 40-4 (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-60817A, sc-60817B and sc-60817C.

RESEARCH USE

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

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 40-4 siRNA (m) is recommended for the inhibition of HSP 40-4 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 40-4 (KA2A5.6): sc-59554 is recommended as a control antibody for monitoring of HSP 40-4 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 40-4 gene expression knockdown using RT-PCR Primer: HSP 40-4 (m)-PR: sc-60817-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.