SANTA CRUZ BIOTECHNOLOGY, INC.

dHAND siRNA (h): sc-37920

BACKGROUND

dHAND (for deciduum, heart, autonomic nervous system and neural crest derivatives; also designated HAND2) and eHAND (also designated HAND1, HXT or Thing1) are members of a subclass of basic-helix-loop-helix transcription factors that are involved in cardiac development. dHAND and eHAND are expressed in the heart after cardiac looping and participate in left-right cardiac asymmetry. dHAND is expressed predominantly on the right side of the looped heart tube and in the pulmonary ventricle, where it activates transcription of various genes, including UFD1 (for ubiquitin fusion degradation) and Cdc45. In addition, dHAND is expressed in sympathetic neurons and chromafin cells throughout embryonic and fetal development, and mediates neural crest development. eHAND expression is primarily observed on the left side and in the systemic ventricle, suggesting that these proteins are involved in the development of segments of the heart tube, which give rise to specific heart chambers during cardiogenesis.

REFERENCES

1. Srivastava, D., et al. 1995. A subclass of bHLH proteins required for cardiac morphogenesis. Science 270: 1995-1999.
2. Srivastava, D., et al. 1997. Regulation of cardiac mesodermal and neural crest development by the bHLH transcription factor, dHAND. Nat. Genet. 16: 154-160.
3. Knofler, M., et al. 1998. Molecular cloning of the human HAND1 gene/cDNA and its tissue-restricted expression in cytotrophoblastic cells and heart. Gene 224: 77-86.
4. Thomas, T., et al. 1998. A signaling cascade involving endothelin-1, dHAND and Msx-1 regulates development of neural crest-derived branchial arch mesenchyme. Development 125: 3005-3014.
5. Thomas, T., et al. 1998. The bHLH factors, dHAND and eHAND, specify pulmonary and systemic cardiac ventricles independent of left-right sidedness. Dev. Biol. 196: 228-236.
6. Srivastava, D. 1999. HAND proteins: molecular mediators of cardiac development and congenital heart disease. Trends Cardiovasc. Med. 9: 11-18.

CHROMOSOMAL LOCATION

Genetic locus: HAND2 (human) mapping to 4q34.1.

PRODUCT

dHAND 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 dHAND shRNA Plasmid (h): sc-37920-SH and dHAND shRNA (h) Lentiviral Particles: sc-37920-V as alternate gene silencing products.

For independent verification of dHAND (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-37920A, sc-37920B and sc-37920C.

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

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

dHAND (A-12): sc-398167 is recommended as a control antibody for monitoring of dHAND 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 dHAND gene expression knockdown using RT-PCR Primer: dHAND (h)-PR: sc-37920-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.