



TSHZ3 siRNA (h): sc-76764

BACKGROUND

The homeobox DNA-binding domain is a 60 amino acid motif that is conserved among many species and functions to bind DNA via a helix-turn-helix structure, thereby playing a role in transcriptional regulation and the control of gene expression. TSHZ3 (teashirt zinc finger homeobox 3), also known as KIAA1474, TSH3 or ZNF537, is a 1,081 amino acid protein that contains one homeobox DNA-binding domain and five C₂H₂-type zinc fingers. Localized to the nucleus, TSHZ3 functions as a transcriptional regulator that is involved in developmental processes throughout the body. The gene encoding TSHZ3 maps to human chromosome 19q12, which consists of over 63 million bases, houses approximately 1,400 genes and is recognized for having the greatest gene density of the human chromosomes.

REFERENCES

1. Brandenberger, R., Wei, H., Zhang, S., Lei, S., Murage, J., Fisk, G.J., Li, Y., Xu, C., Fang, R., Guegler, K., Rao, M.S., Mandalam, R., Lebkowski, J. and Stanton, L.W. 2004. Transcriptome characterization elucidates signaling networks that control human ES cell growth and differentiation. *Nat. Biotechnol.* 22: 707-716.
2. Caubit, X., Tiveron, M.C., Cremer, H. and Fasano, L. 2005. Expression patterns of the three teashirt-related genes define specific boundaries in the developing and postnatal mouse forebrain. *J. Comp. Neurol.* 486: 76-88.
3. Olsen, J.V., Blagoev, B., Gnad, F., Macek, B., Kumar, C., Mortensen, P. and Mann, M. 2006. Global, *in vivo*, and site-specific phosphorylation dynamics in signaling networks. *Cell* 127: 635-648.
4. Manfroid, I., Caubit, X., Marcelle, C. and Fasano, L. 2006. Teashirt 3 expression in the chick embryo reveals a remarkable association with tendon development. *Gene Expr. Patterns* 6: 908-912.
5. Caubit, X., Lye, C.M., Martin, E., Core, N., Long, D.A., Vola, C., Jenkins, D., Garratt, A.N., Skaer, H., Woolf, A.S. and Fasano, L. 2008. Teashirt 3 is necessary for ureteral smooth muscle differentiation downstream of SHH and BMP4. *Development* 135: 3301-3310.
6. Kajiwar, Y., Akram, A., Katsel, P., Haroutunian, V., Schmeidler, J., Beecham, G., Haines, J.L., Pericak-Vance, M.A. and Buxbaum, J.D. 2009. FE65 binds teashirt, inhibiting expression of the primate-specific caspase-4. *PLoS ONE* 4: e5071.

CHROMOSOMAL LOCATION

Genetic locus: TSHZ3 (human) mapping to 19q12.

PRODUCT

TSHZ3 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see TSHZ3 shRNA Plasmid (h): sc-76764-SH and TSHZ3 shRNA (h) Lentiviral Particles: sc-76764-V as alternate gene silencing products.

For independent verification of TSHZ3 (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-76764A, sc-76764B and sc-76764C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

TSHZ3 siRNA (h) is recommended for the inhibition of TSHZ3 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 μ M in 66 μ l. 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor TSHZ3 gene expression knockdown using RT-PCR Primer: TSHZ3 (h)-PR: sc-76764-PR (20 μ l). 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.