SANTA CRUZ BIOTECHNOLOGY, INC.

Barx1 siRNA (h): sc-60247

BACKGROUND

The BAR homeobox (Barx) family of proteins comprise Barx1 and Barx2. These proteins are regulators of place-dependent morphogenesis and play important roles in controlling the expression patterns of cell adhesion molecules. Barx1, a 226-amino acid nuclear protein, is expressed primarily in testis, heart, and craniofacial tissue. Barx1 is a homeodomain transcription factor important in odontogenesis, craniofacial development, and stomach organogenesis. Barx1 controls mesenchymal cell expression of two secreted Wnt antagonists, sFRP1 and sFRP2, proteins that are important in the development of the gastric endoderm which occurs before the epithelial differentiation. During early stages of molar development, Barx1 directs the undetermined ectomesenchymal cells in the proximal region of the jaws to follow the pathway of multicuspid tooth development. Fibroblast growth factor-8 (FGF8) stimulates Barx1 expression, while bone morphogenetic protein-4 (BMP4) inhibits Barx1 expression.

REFERENCES

1. Tissier-Seta, J.P., et al. 1995. Barx1, a new mouse ectomesenchyme and the stomach. Mech. Dev. 51: 3-15.
2. Mitsiadis, T.A., et al. 1998. Expression of the transcription factors Otlx2, Barx1 and Sox-9 during mouse odontogenesis. Eur. J. Oral Sci. 106: 112-116.
3. Gould, D.B. and Walter, M.A. 2000. Cloning, characterization, localization, and mutational screening of the human BARX1 gene. Genomics 68: 336-342.
4. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 603260. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
5. Gould, D.B. and Walter, M.A. 2004. Mutational analysis of BARHL1 and Barx1 in three new patients with Joubert syndrome. Am. J. Med. Genet. 131: 205-208.
6. Sander, G.R. and Powell, B.C. 2004. Expression of the homeobox gene Barx2 in the gut. J. Histochem. Cytochem. 52: 541-544.
7. Kim, B.M., et al. 2005. The stomach mesenchymal transcription factor Barx1 specifies gastric epithelial identity through inhibition of transient Wnt signaling. Dev. Cell 8: 611-622.

CHROMOSOMAL LOCATION

Genetic locus: BARX1 (human) mapping to 9q22.32.

PRODUCT

Barx1 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 Barx1 shRNA Plasmid (h): sc-60247-SH and Barx1 shRNA (h) Lentiviral Particles: sc-60247-V as alternate gene silencing products.

For independent verification of Barx1 (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-60247A, sc-60247B and sc-60247C.

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

Barx1 siRNA (h) is recommended for the inhibition of Barx1 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

Barx1 (392.8): sc-81956 is recommended as a control antibody for monitoring of Barx1 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 Barx1 gene expression knockdown using RT-PCR Primer: Barx1 (h)-PR: sc-60247-PR (20 µl, 583 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.