SANTA CRUZ BIOTECHNOLOGY, INC.

HB9 siRNA (h): sc-38667

BACKGROUND

The HB9 homeobox transcription factor regulates gene expression during embryonic development and also in specific adult tissues. HB9 gene mutations are implicated in Curriano syndrome, which is characterized by a triad consisting of a presacral tumor, sacral agenesis and anorectal malformation. In human bone marrow cells, HB9 expression directly correlates with CD34 expression. Furthermore, HB9 expression increases in $CD34^+$ cells that are treated with IL-3 and granulocyte macrophage-colony-stimulating factor. Early in murine development, HB9 is expressed in pancreatic buds (dorsal and ventral) with subsequent expression in differentiating β cells in the islets of Langerhans. The dorsal lobe of the pancreas fails to form in $HB9^-$ mice; the resultant pancreas has smaller islets of Langerhans and less β cells than normal pancreas. The HB9 gene is expressed in the human adult pancreas. In the developing vertebrate embryo, the HB9 gene plays an essential role in motor neuron differentiation. The motor columns of $HB9^-$ mice are disorganized, lacking phrenic and abducens nerves and exhibiting intercostal nerve defects.

REFERENCES

1. Deguchi, Y. and Kehrl, J.H. 1991. Selective expression of two homeobox genes in $CD34^+$ cells from human bone marrow. Blood 78: 323-328.
2. Najfeld, V., et al. 1992. Two diverged human homeobox genes involved in the differentiation of human hematopoietic progenitors map to chromosome 1, bands q41-42.1. Genes Chromosomes Cancer 5: 343-347.
3. Ross, A.J., et al. 1998. A homeobox gene, Hlxb9, is the major locus for dominantly inherited sacral agenesis. Nat. Genet. 20: 358-361.
4. Li, H., et al. 1999. Selective agenesis of the dorsal pancreas in mice lacking homeobox gene Hlxb9. Nat. Genet. 23: 67-70.
5. Harrison, K.A., et al. 1999. Pancreas dorsal lobe agenesis and abnormal islets of Langerhans in Hlxb9-deficient mice. Nat. Genet. 23: 71-75.
6. Arber, S., et al. 1999. Requirement for the homeobox gene HB9 in the consolidation of motor neuron identity. Neuron 23: 659-674.
7. Thaler, J., et al. 1999. Active suppression of interneuron programs within developing motor neurons revealed by analysis of homeodomain factor HB9. Neuron 23: 675-687.

CHROMOSOMAL LOCATION

Genetic locus: MNX1 (human) mapping to 7q36.3.

PRODUCT

HB9 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 HB9 shRNA Plasmid (h): sc-38667-SH and HB9 shRNA (h) Lentiviral Particles: sc-38667-V as alternate gene silencing products.

For independent verification of HB9 (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-38667A, sc-38667B and sc-38667C.

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

HB9 siRNA (h) is recommended for the inhibition of HB9 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

HB9 (F-5): sc-515769 is recommended as a control antibody for monitoring of HB9 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 HB9 gene expression knockdown using RT-PCR Primer: HB9 (h)-PR: sc-38667-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.