SANTA CRUZ BIOTECHNOLOGY, INC.

Cdx4 siRNA (h): sc-72316

BACKGROUND

Cdx1, Cdx2 and Cdx4 are members of the caudal-type homeobox family of genes, which are homologs of the *Drosophila* "caudal" gene required for anterior-posterior regional identity. The proteins encoded by these genes are transcription factors which play an important role in development by regulating the expression of Hox genes. Hox genes play a fundamental role in the development of the vertebrate central nervous system, heart, axial skeleton, limbs, gut, urogenital tract and external genitalia. Cdx4 is a major positive regulator of the expression of all Hox family members. Due to its critical role as a regulator, Cdx4 is a direct target of the canonical Wnt pathway. The loss of Cdx4 can result in the development of an expanded hindbrain, while the overexpression of Cdx4 may cause the hindbrain to lose its distinct segmental features and resemble the spinal cord.

REFERENCES

1. Gamer, L.W., et al. 1994. Murine Cdx-4 bears striking similarities to the *Drosophila* caudal gene in its homeodomain sequence and early expression pattern. Mech. Dev. 43: 71-81.
2. Horn, J.M., et al. 1995. A member of the caudal family of homeobox genes maps to the X-inactivation centre region of the mouse and human X chromosomes. Hum. Mol. Genet. 4: 1041-1047.
3. Bonner, C.A., et al. 1996. Isolation, characterization, and precise physical localization of human Cdx1, a caudal-type homeobox gene. Genomics 28: 206-211.
4. Pilon, N., et al. 2005. Cdx4 is a direct target of the canonical Wnt pathway. Dev. Biol. 289: 55-63.
5. Gaunt, S.J., et al. 2005. Cdx4/LacZ and Cdx2/LacZ protein gradients formed by decay during gastrulation in the mouse. Int. J. Dev. Biol. 49: 901-908.
6. Tabariès, S., et al. 2005. Cdx protein interaction with Hoxa5 regulatory sequences contributes to Hoxa5 regional expression along the axial skeleton. Mol. Cell. Biol. 25: 1389-1401.
7. Bansal, D., et al. 2006. Cdx4 dysregulates Hox gene expression and generates acute myeloid leukemia alone and in cooperation with Meis1a in a murine model. Proc. Natl. Acad. Sci. USA 103: 16924-16929.

CHROMOSOMAL LOCATION

Genetic locus: CDX4 (human) mapping to Xp13.2.

PRODUCT

Cdx4 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 Cdx4 shRNA Plasmid (h): sc-72316-SH and Cdx4 shRNA (h) Lentiviral Particles: sc-72316-V as alternate gene silencing products.

For independent verification of Cdx4 (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-72316A, sc-72316B and sc-72316C.

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

Cdx4 siRNA (h) is recommended for the inhibition of Cdx4 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

Cdx4 (H-4): sc-374471 is recommended as a control antibody for monitoring of Cdx4 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 Cdx4 gene expression knockdown using RT-PCR Primer: Cdx4 (h)-PR: sc-72316-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.