SANTA CRUZ BIOTECHNOLOGY, INC.

Cdx2 siRNA (h): sc-43680

BACKGROUND

The members of the murine Cdx family (Cdx1, Cdx2 and Cdx4) are members of the caudal-type homeobox family of genes, which are homologues of the *Drosophila* "caudal" gene required for anterior-posterior regional identity. The intestine-specific transcription factors Cdx1 and Cdx2 are candidate genes for directing intestinal development, differentiation, proliferation and maintenance of the intestinal phenotype. The relative expression of Cdx1 to Cdx2 protein may be important in the anterior to posterior patterning of the intestinal epithelium and in defining patterns of proliferation and differentiation along the crypt-villus axis. Expression of the Cdx1 homeobox gene in epithelial intestinal cells promotes cellular growth and differentiation. Cdx1 positively regulates its own expression. Cdx1 and Cdx2 are expressed in the small intestine and colon of fetus and adult. A decrease in human Cdx1 and/or Cdx2 expression is associated with colorectal tumorigenesis. Both Cdx1 and Cdx2 genes must be expressed to reduce tumorigenic potential, to increase sensitivity to apoptosis and to reduce cell migration, suggesting that the two genes control the normal phenotype by independent pathways. The human Cdx1 gene maps to chromosome 5q32 and encodes a 265-amino acid protein.

CHROMOSOMAL LOCATION

Genetic locus: CDX2 (human) mapping to 13q12.2.

PRODUCT

Cdx2 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 Cdx2 shRNA Plasmid (h): sc-43680-SH and Cdx2 shRNA (h) Lentiviral Particles: sc-43680-V as alternate gene silencing products.

For independent verification of Cdx2 (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-43680A, sc-43680B and sc-43680C.

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

Cdx2 siRNA (h) is recommended for the inhibition of Cdx2 expression in human cells.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

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

Cdx2 (E-1): sc-393572 is recommended as a control antibody for monitoring of Cdx2 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Cdx2 gene expression knockdown using RT-PCR Primer: Cdx2 (h)-PR: sc-43680-PR (20 µl, 434 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Valente, A.J., et al. 2008. Regulation of NOX1 expression by GATA, HNF-1α, and Cdx transcription factors. Free Radic. Biol. Med. 44: 430-443.
2. Abe, M., et al. 2011. Mechanisms of confluence-dependent expression of CD26 in colon cancer cell lines. BMC Cancer 11: 51.
3. Kerschner, J.L., et al. 2012. Transcriptional networks driving enhancer function in the CFTR gene. Biochem. J. 446: 203-212.
4. Gopal, A., et al. 2014. Shigella dysenteriae modulates BMP pathway to induce mucin gene expression *in vivo* and *in vitro*. PLoS ONE 9: e111408.
5. Tamagawa, Y., et al. 2016. Bile acids induce Delta-like 1 expression via Cdx2-dependent pathway in the development of Barrett's esophagus. Lab. Invest. 96: 325-337.
6. Du, Q., et al. 2016. Chemopreventive activity of GEN-27, a genistein derivative, in colitis-associated cancer is mediated by p65-CDX2-β-catenin axis. Oncotarget 7: 17870-17884.
7. Kado, S., et al. 2017. Aryl hydrocarbon receptor signaling modifies Toll-like receptor-regulated responses in human dendritic cells. Arch. Toxicol. 91: 2209-2221.
8. Yin, S., et al. 2022. Cross-talk between enhancers, structural elements and activating transcription factors maintains the 3D architecture and expression of the CFTR gene. Genomics 114: 110350.

RESEARCH USE

For research use only, not for use in diagnostic procedures.