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Cdx2 shRNA (h) Lentiviral Particles: sc-43680-V

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 5q31-q33 and encodes a 265-amino acid protein.

REFERENCES

1. Mallo, G.V., et al. 1997. Molecular cloning, sequencing and expression of the mRNA encoding human Cdx1 and Cdx2 homeobox. Downregulation of Cdx1 and Cdx2 mRNA expression during colorectal carcinogenesis. *Int. J. Cancer* 74: 35-44.
2. Mallo, G.V., et al. 1998. Expression of the Cdx1 and Cdx2 homeotic genes leads to reduced malignancy in colon cancer-derived cells. *J. Biol. Chem.* 273: 14030-14036.
3. Silberg, D.G., et al. 2000. Cdx1 and Cdx2 expression during intestinal development. *Gastroenterology* 119: 961-971.
4. Allan, D., et al. 2001. RAR γ and Cdx1 interactions in vertebral patterning. *Dev. Biol.* 240: 46-60.

CHROMOSOMAL LOCATION

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

PRODUCT

Cdx2 shRNA (h) Lentiviral Particles is a pool of concentrated, transduction-ready viral particles containing 3 target-specific constructs that encode 19-25 nt (plus hairpin) shRNA designed to knock down gene expression. Each vial contains 200 μ l frozen stock containing 1.0×10^6 infectious units of virus (IFU) in Dulbecco's Modified Eagle's Medium with 25 mM HEPES pH 7.3. Suitable for 10-20 transductions. Also see Cdx2 siRNA (h): sc-43680 and Cdx2 shRNA Plasmid (h): sc-43680-SH as alternate gene silencing products.

STORAGE

Store lentiviral particles at -80° C. Stable for at least one year from the date of shipment. Once thawed, particles can be stored at 4° C for up to one week. Avoid repeated freeze thaw cycles.

APPLICATIONS

Cdx2 shRNA (h) Lentiviral Particles is recommended for the inhibition of Cdx2 expression in human cells.

SUPPORT REAGENTS

Control shRNA Lentiviral Particles: sc-108080. Available as 200 μ l frozen viral stock containing 1.0×10^6 infectious units of virus (IFU); contains an shRNA construct encoding a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA.

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).

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use goat anti-mouse IgG-FITC: sc-2010 (dilution range: 1:100-1:400) or goat anti-mouse IgG-TR: sc-2781 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

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 μ l, 434 bp). Annealing temperature for the primers should be $55-60^{\circ}$ C and the extension temperature should be $68-72^{\circ}$ C.

BIOSAFETY

Lentiviral particles can be employed in standard Biosafety Level 2 tissue culture facilities (and should be treated with the same level of caution as with any other potentially infectious reagent). Lentiviral particles are replication-incompetent and are designed to self-inactivate after transduction and integration of shRNA constructs into genomic DNA of target cells.

RESEARCH USE

The purchase of this product conveys to the buyer the nontransferable right to use the purchased amount of the product and all replicates and derivatives for research purposes conducted by the buyer in his laboratory only (whether the buyer is an academic or for-profit entity). The buyer cannot sell or otherwise transfer (a) this product (b) its components or (c) materials made using this product or its components to a third party, or otherwise use this product or its components or materials made using this product or its components for Commercial Purposes.

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