SANTA CRUZ BIOTECHNOLOGY, INC.

ZEB2 siRNA (h): sc-38641

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The Power to Question

BACKGROUND

SMAD regulates gene expression by interacting with different classes of transcription factors including DNA-binding multi-zinc finger proteins. ZEB2 (zinc finger E-box-binding protein 2) is a member of the δ-EF1/Zfh1 family of 2-handed zinc finger/homeodomain proteins. ZEB2 contains a SMAD-binding domain, a homeodomain and two clusters of zinc fingers on the N- and C-termini. ZEB2, also known as SMADIP1, ZFHX1B and SIP1 (SMAD interacting protein 1), may be induced by TGFβ treatment. ZEB2 plays a crucial role in normal embryonic development of neural structures and neural crest. The human ZEB2 gene maps to chromosome 2q22.3. Mutations in the ZEB2 gene cause a form of Hirschsprung disease (HSCR). Patients with ZEB2 mutations show mental retardation, delayed motor development, epilepsy, microcephaly, distinct facial features and/or congenital heart disease, all symptoms of HSCR.

CHROMOSOMAL LOCATION

Genetic locus: ZEB2 (human) mapping to 2q22.3.

PRODUCT

ZEB2 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 ZEB2 shRNA Plasmid (h): sc-38641-SH and ZEB2 shRNA (h) Lentiviral Particles: sc-38641-V as alternate gene silencing products.

For independent verification of ZEB2 (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-38641A, sc-38641B and sc-38641C.

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

ZEB2 siRNA (h) is recommended for the inhibition of ZEB2 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

ZEB2 (E-11): sc-271984 is recommended as a control antibody for monitoring of ZEB2 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 ZEB2 gene expression knockdown using RT-PCR Primer: ZEB2 (h)-PR: sc-38641-PR (20 µl, 542 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Zhao, C., et al. 2014. Genome-wide profiling of AP-1-regulated transcription provides insights into the invasiveness of triple-negative breast cancer. Cancer Res. 74: 3983-3994.
2. Zhang, Z., et al. 2015. FOXA2 attenuates the epithelial to mesenchymal transition by regulating the transcription of E-cadherin and ZEB2 in human breast cancer. Cancer Lett. 361: 240-250.
3. Xiao, L., et al. 2015. MicroRNA-129-5p modulates epithelial-to-mesenchymal transition by targeting SIP1 and SOX4 during peritoneal dialysis. Lab. Invest. 95: 817-832.
4. Sun, H., et al. 2016. Integrated long non-coding RNA analyses identify novel regulators of epithelial-mesenchymal transition in the mouse model of pulmonary fibrosis. J. Cell. Mol. Med. 20: 1234-1246.
5. Geng, D.M., et al. 2017. Effect of ZEB2 silencing on cisplatin resistance in gastric cancer. Eur. Rev. Med. Pharmacol. Sci. 21: 1746-1752.
6. Kim, D.Y., et al. 2019. Impact of miR-192 and miR-194 on cyst enlargement through EMT in autosomal dominant polycystic kidney disease. FASEB J. 33: 2870-2884.
7. Tan, S., et al. 2020. Hesperidin administration suppresses the proliferation of lung cancer cells by promoting apoptosis via targeting the miR-132/ZEB2 signalling pathway. Int. J. Mol. Med. 46: 2069-2077.
8. Safaee, S., et al. 2021. Silencing ZEB2 induces apoptosis and reduces viability in glioblastoma cell lines. Molecules 26: 901.

RESEARCH USE

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