SANTA CRUZ BIOTECHNOLOGY, INC.

ZEB1 siRNA (h): sc-38643

BACKGROUND

ZEB1 (also designated Zfhep, for zinc finger homeodomain enhancer-binding protein, δEF1, AREB6, BZP and NIL-2A) is a non-receptor transcription factor analogous to the *Drosophila* ZFH-1 protein. ZEB1 contains two separate zinc finger domains (ZD1 and ZD2), which are essential for DNA binding and repression, and a homeodomain (HD), which is not. ZEB1 also contains three repression domains, two of which flank ZD1, and a third located between HD and ZD2. ZEB1 represses transcription by site competition and enhancer silencing mechanisms, as well as by interacting with corepressors through its repression domains. Interaction of ZEB1 with the TSHβ gene T3-response element may play a role in the modification of gene-specific regulation by thyroid hormones. In the embryo, ZEB1 is primarily expressed in the mesoderm, but changes in the level of expression during tissue maturation suggest a role for ZEB1 in the early histogenesis of mesodermal tissues. In addition to its role as an embryonic gene regulator, ZEB1 is also involved in regulating the development of certain skeletal structures.

REFERENCES

1. Funahashi, J., et al. 1993. δ-crystallin enhancer binding protein δ EF1 is a zinc-finger homeodomain protein implicated in postgastrulation embryogenesis. Development 119: 433-446.
2. Franklin, A., et al. 1994. BZP, a novel serum-responsive zinc finger protein that inhibits gene transcription. Mol. Cell. Biol. 14: 6773-6788.

CHROMOSOMAL LOCATION

Genetic locus: ZEB1 (human) mapping to 10p11.22.

PRODUCT

ZEB1 siRNA (h) is a pool of 2 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 ZEB1 shRNA Plasmid (h): sc-38643-SH and ZEB1 shRNA (h) Lentiviral Particles: sc-38643-V as alternate gene silencing products.

For independent verification of ZEB1 (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-38643A and sc-38643B.

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

ZEB1 siRNA (h) is recommended for the inhibition of ZEB1 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

ZEB1 (416A7H10): sc-81428 is recommended as a control antibody for monitoring of ZEB1 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 ZEB1 gene expression knockdown using RT-PCR Primer: ZEB1 (h)-PR: sc-38643-PR (20 µl, 440 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Kong, D., et al. 2009. miR-200 regulates PDGF-D-mediated epithelial-mesenchymal transition, adhesion, and invasion of prostate cancer cells. Stem Cells 27: 1712-1721.
2. Wels, C., et al. 2011. Transcriptional activation of ZEB1 by Slug leads to cooperative regulation of the epithelial-mesenchymal transition-like phenotype in melanoma. J. Invest. Dermatol. 131: 1877-1885.
3. Byles, V., et al. 2012. SIRT1 induces EMT by cooperating with EMT transcription factors and enhances prostate cancer cell migration and metastasis. Oncogene 31: 4619-4629.
4. Liu, T.A., et al. 2013. 14-3-3ε overexpression contributes to epithelial-mesenchymal transition of hepatocellular carcinoma. PLoS ONE 8: e57968.
5. Yang, X., et al. 2014. Overexpression of zinc finger E-box binding homeobox factor 1 promotes tumor invasiveness and confers unfavorable prognosis in esophageal squamous cell carcinoma. Tumour Biol. 35: 11977-11984.
6. Jung, Y.D., et al. 2015. Downregulation of UHRF1 promotes EMT via inducing CXCR4 in human cancer cells. Int. J. Oncol. 46: 1232-1242.
7. Ma, Z., et al. 2016. MicroRNA-409-3p regulates cell invasion and metastasis by targeting ZEB1 in breast cancer. IUBMB Life 68: 394-402.
8. Zhang, H., et al. 2019. Upregulation of miR-33b promotes endometriosis via inhibition of Wnt/β-catenin signaling and ZEB1 expression. Mol. Med. Rep. 19: 2144-2152.

RESEARCH USE

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