

DEC1 siRNA (h): sc-106769

BACKGROUND

Human DEC1, also known as SHARP2, is a 412 amino acid, basic helix-loop-helix (bHLH) containing protein that is involved in the control of proliferation and/or differentiation of several cell types including nerve cells, fibroblasts and chondrocytes. The bHLH region of DEC1 is structurally similar to the bHLH regions of the mammalian HES family, *Drosophila* Hair and *Drosophila* enhancer of split m7. DEC1 is a novel direct target for cAMP in a wide range of cells, and is involved in the control of gene expression in cAMP-activated cells. Brief light impulses induce the expression of DEC1 in a phase-dependent manner. DEC1 is highly expressed in cartilage, intestine, lung and spleen. DEC1 and DEC2 play a role in regulating the mammalian molecular clock by suppressing the transcription of specific clock genes. Both DEC1 and DEC2 are detected in the suprachiasmatic nucleus in a circadian fashion.

REFERENCES

1. Shen, M., et al. 1997. Molecular characterization of the novel basic helix-loop-helix protein DEC1 expressed in differentiated human embryo chondrocytes. *Biochem. Biophys. Res. Commun.* 236: 294-298.
2. Shen, M., et al. 2001. Induction of basic helix-loop-helix protein DEC1 (bHLHB2)/Stra13/Sharp2 in response to the cyclic adenosine mono-phosphate pathway. *Eur. J. Cell Biol.* 80: 329-334.

CHROMOSOMAL LOCATION

Genetic locus: BHLHE40 (human) mapping to 3p26.1.

PRODUCT

DEC1 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see DEC1 shRNA Plasmid (h): sc-106769-SH and DEC1 shRNA (h) Lentiviral Particles: sc-106769-V as alternate gene silencing products.

For independent verification of DEC1 (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-106769A, sc-106769B and sc-106769C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

DEC1 siRNA (h) is recommended for the inhibition of DEC1 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 μ M in 66 μ l. 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

DEC1 (S-8): sc-101023 is recommended as a control antibody for monitoring of DEC1 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 DEC1 gene expression knockdown using RT-PCR Primer: DEC1 (h)-PR: sc-106769-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Liu, Y., et al. 2013. DEC1 is positively associated with the malignant phenotype of invasive breast cancers and negatively correlated with the expression of claudin-1. *Int. J. Mol. Med.* 31: 855-860.
2. Giannoni, E., et al. 2015. Targeting stromal-induced pyruvate kinase M2 nuclear translocation impairs oxphos and prostate cancer metastatic spread. *Oncotarget* 6: 24061-24074.
3. Ning, R., et al. 2017. Interleukin-6 induces DEC1, promotes DEC1 interaction with RXR α and suppresses the expression of PXR, CAR and their target genes. *Front. Pharmacol.* 8: 866.
4. Zheng, Q., et al. 2018. Interaction with SP1, but not binding to the E-box motifs, is responsible for BHLHE40/DEC1-induced transcriptional suppression of CLDN1 and cell invasion in MCF-7 cells. *Mol. Carcinog.* 57: 1116-1129.

RESEARCH USE

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