

HNF-4 α siRNA (h): sc-35573

BACKGROUND

HNF-1 (α and β), HNF-3 (α , β and γ), HNF-4 (α and γ) and HNF-6 compose, in part, a homeoprotein family designated the hepatocyte nuclear factor family. The various HNF-1 isoforms regulate transcription of genes in the liver as well as in other tissues such as kidney, small intestine and thymus. HNF-3 α , HNF-3 β and HNF-3 γ regulate the transcription of numerous hepatocyte genes in adult liver. HNF-3 α and HNF-3 β have also been shown to be involved in gastrulation events such as body axis formation. HNF-4 α and HNF-4 γ have been shown to be important for early embryo development. HNF-4 α is expressed in liver, kidney, pancreas, small intestine, testis and colon; and HNF-4 γ is expressed in each of these tissues except liver. HNF-6 has been shown to bind to the promoter of HNF-3 β , which indicates a potential role of HNF-6 in gut endoderm epithelial cell differentiation. Evidence suggests that HNF-6 may also be a transcriptional activator for at least 22 other hepatocyte-enriched genes, including cytochrome P450 2C13 and α -1 antitrypsin.

CHROMOSOMAL LOCATION

Genetic locus: HNF4A (human) mapping to 20q13.12.

PRODUCT

HNF-4 α 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 HNF-4 α shRNA Plasmid (h): sc-35573-SH and HNF-4 α shRNA (h) Lentiviral Particles: sc-35573-V as alternate gene silencing products.

For independent verification of HNF-4 α (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-35573A, sc-35573B and sc-35573C.

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

HNF-4 α siRNA (h) is recommended for the inhibition of HNF-4 α 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 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

HNF-4 α (Q-15): sc-101059 is recommended as a control antibody for monitoring of HNF-4 α 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 HNF-4 α gene expression knockdown using RT-PCR Primer: HNF-4 α (h)-PR: sc-35573-PR (20 μ l, 580 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Yamaguchi, N., et al. 2009. Hepatocyte nuclear factor-4 α regulates human cellular retinol-binding protein type II gene expression in intestinal cells. *Am. J. Physiol. Gastrointest. Liver Physiol.* 296: G524-G533.
2. Thangavel, C., et al. 2011. Intrinsic sexually dimorphic expression of the principal human CYP3A4 correlated with suboptimal activation of GH/glucocorticoid-dependent transcriptional pathways in men. *Endocrinology* 152: 4813-4824.
3. Yamaguchi, N., et al. 2014. Competitive regulation of human intestinal β -carotene 15,15'-monooxygenase 1 (BCM01) gene expression by hepatocyte nuclear factor (HNF)-1 α and HNF-4 α . *Life Sci.* 119: 34-39.
4. Wei, S., et al. 2016. HNF-4 α regulated miR-122 contributes to development of gluconeogenesis and lipid metabolism disorders in type 2 diabetic mice and in palmitate-treated Hep G2 cells. *Eur. J. Pharmacol.* 791: 254-263.
5. Shi, W., et al. 2017. HNF-4 α negatively regulates hepcidin expression through BMPR1A in Hep G2 cells. *Biol. Trace Elem. Res.* 176: 294-304.
6. Muthusamy, S., 2018. Hepatocyte nuclear factor 4 α regulates the expression of intestinal epithelial Na⁺/H⁺ exchanger isoform 3. *Am. J. Physiol. Gastrointest. Liver Physiol.* 314: G14-G21.
7. Seo, E., et al. 2022. Reactive oxygen species induce HNF-4 α expression via the ASK1-CREB pathway, promoting ChREBP expression and lipogenesis in hepatocytes. *Life Sci.* 310: 121042.

RESEARCH USE

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