



HNF-3 α siRNA (h): sc-37930

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; 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.

REFERENCES

1. Bach, I., et al. 1993. More potent transcriptional activators or a trans-dominant inhibitor of the HNF1 homeoprotein family are generated by alternative RNA processing. *EMBO J.* 12: 4229-4242.
2. Kaestner, K.H., et al. 1994. The HNF-3 gene family of transcription factors in mice: gene structure, cDNA sequence, and mRNA distribution. *Genomics* 20: 377-385.

CHROMOSOMAL LOCATION

Genetic locus: FOXA1 (human) mapping to 14q21.1.

PRODUCT

HNF-3 α 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see HNF-3 α shRNA Plasmid (h): sc-37930-SH and HNF-3 α shRNA (h) Lentiviral Particles: sc-37930-V as alternate gene silencing products.

For independent verification of HNF-3 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-37930A and sc-37930B.

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-3 α siRNA (h) is recommended for the inhibition of HNF-3 α 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

HNF-3 α (A-3): sc-514695 is recommended as a control antibody for monitoring of HNF-3 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-3 α gene expression knockdown using RT-PCR Primer: HNF-3 α (h)-PR: sc-37930-PR (20 μ l, 449 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Walker, S.R., et al. 2013. Stat5 outcompetes Stat3 to regulate the expression of the oncogenic transcriptional modulator BCL6. *Mol. Cell. Biol.* 33: 2879-2890.
2. Gosalia, N., et al. 2015. FOXA2 regulates a network of genes involved in critical functions of human intestinal epithelial cells. *Physiol. Genomics* 47: 290-297.
3. Sun, Y., et al. 2016. Metformin induces apoptosis of human hepatocellular carcinoma Hep G2 cells by activating an AMPK/p53/miR-23a/FOXA1 pathway. *Onco Targets Ther.* 9: 2845-2853.
4. Fossum, S.L., et al. 2017. Ets homologous factor (EHF) has critical roles in epithelial dysfunction in airway disease. *J. Biol. Chem.* 292: 10938-10949.
5. Liu, Y., et al. 2019. Resistance to bortezomib in breast cancer cells that downregulate Bim through FOXA1 O-GlcNAcylation. *J. Cell. Physiol.* 234: 17527-17537.
6. Paranjapye, A., et al. 2020. The FOXA1 transcriptional network coordinates key functions of primary human airway epithelial cells. *Am. J. Physiol. Lung Cell. Mol. Physiol.* 319: L126-L136.
7. Yin, S., et al. 2022. Cross-talk between enhancers, structural elements and activating transcription factors maintains the 3D architecture and expression of the CFTR gene. *Genomics* 114: 110350.
8. Tan, H., et al. 2024. TSPYL1 as a critical regulator of TGF β signaling through repression of TGFBR1 and TSPYL2. *Adv. Sci.* 11: e2306486.

RESEARCH USE

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