SANTA CRUZ BIOTECHNOLOGY, INC.

HNF-1β siRNA (m): sc-37929

BACKGROUND

HNF-1 (α and β), HNF-3 (α, β and γ), HNF-4 (α and γ) and HNF-6 compose, in part, a homoeprotein family designated the hepatocyte nuclear factor family. The various HNF-1 isoforms regulate transcription of genes in liver and in other tissues such as kidney, small intestine and thymus. HNF-3α, HNF-3β and HNF-3γ regulate the transcription of numerous hepatocyte genes in adult liver. HNF-3α and HNF-3β have also been shown to be involved in gastrulation events such as body axis formation. HNF-4α and HNF-4γ have been shown to be important for early embryo development. HNF-4α is expressed in liver, kidney, pancreas, small intestine, testis and colon; and HNF-4γ is expressed in each of these tissues except liver. HNF-6 has been shown to bind to the promoter of HNF-3β, which indicates a potential role of HNF-6 in gut endoderm epithelial cell differentiation. Evidence suggests that HNF-6 may also be a transriptional 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 HNF-1 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.
3. Drewes, T., et al. 1996. Human hepatocyte nuclear factor-4 isoforms are encoded by distinct and differentially expressed genes. Mol. Cell. Biol. 16: 925-931.
4. Samadani, U., et al. 1996. The transcriptional activator hepatocyte nuclear factor-6 regulates liver gene expression. Mol. Cell. Biol. 16: 6273-6284.
5. Lebrun, G., et al. 2005. Cystic kidney disease, chromophobe renal cell carcinoma and TCF-2 (HNF-1β) mutations. Nat. Clin. Pract. Nephrol. 1: 115-119.
6. Edghill, E.L., et al. 2006. Hepatocyte nuclear factor-1b mutations cause neonatal diabetes and intrauterine growth retardation: support for a critical role of HNF-1β in human pancreatic development. Diabet. Med. 23: 1301-1306.
7. Higashiguchi, A., et al. 2007. Specific expression of hepatocyte nuclear factor-1β in the ovarian clear cell adenocarcinoma and its application to cytological diagnosis. Cancer Sci. 98: 387-391.
8. Beckers, D., et al. 2007. Neonatal cholestatic jaundice as the first symptom of a mutation in the hepatocyte nuclear factor-1β gene (HNF-1β). J. Pediatr. 150: 313-314.

CHROMOSOMAL LOCATION

Genetic locus: Hnf1b (mouse) mapping to 11 C.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

PRODUCT

HNF-1β siRNA (m) 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 HNF-1β shRNA Plasmid (m): sc-37929-SH and HNF-1β shRNA (m) Lentiviral Particles: sc-37929-V as alternate gene silencing products.

For independent verification of HNF-1β (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-37929A, sc-37929B and sc-37929C.

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

HNF-1β siRNA (m) is recommended for the inhibition of HNF-1β 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor HNF-1β gene expression knockdown using RT-PCR Primer: HNF-1β (m)-PR: sc-37929-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Watanabe, T., et al. 2020. Transcriptional regulation of the Angptl8 gene by hepatocyte nuclear factor-1 in the murine liver. Sci. Rep. 10: 9999.

RESEARCH USE

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