SANTA CRUZ BIOTECHNOLOGY, INC.

FGF-21 siRNA (m): sc-39485

BACKGROUND

Fibroblast growth factor-1 (FGF-1), also designated acidic FGF, and fibroblast growth factor-2 (FGF-2), also designated basic FGF, are members of a family of growth factors that stimulate proliferation of cells of mesenchymal, epithelial and neuroectodermal origin. Additional members of the FGF family include the oncogenes FGF-3 (Int2) and FGF-4 (hst/Kaposi), FGF-5, FGF-6, FGF-7 (KGF), FGF-8 (AIGF), FGF-9 (GAF) and FGF-10–FGF-23. Members of the FGF family share 30-55% amino acid sequence identity and similar gene structure, and are capable of transforming cultured cells when overexpressed in transfected cells. Cellular receptors for FGFs are members of a second multigene family including four tyrosine kinases, designated Flg (FGFR-1), Bek (FGFR-L), TKF and FGFR-3.

CHROMOSOMAL LOCATION

Genetic locus: Fgf21 (mouse) mapping to 7 B4.

PRODUCT

FGF-21 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 FGF-21 shRNA Plasmid (m): sc-39485-SH and FGF-21 shRNA (m) Lentiviral Particles: sc-39485-V as alternate gene silencing products.

For independent verification of FGF-21 (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-39485A, sc-39485B and sc-39485C.

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

FGF-21 siRNA (m) is recommended for the inhibition of FGF-21 expression in mouse 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

FGF-21 (Y-16): sc-81946 is recommended as a control antibody for monitoring of FGF-21 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 FGF-21 gene expression knockdown using RT-PCR Primer: FGF-21 (m)-PR: sc-39485-PR (20 µl, 511 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Liu, S.Q., et al. 2012. Cardioprotective proteins upregulated in the liver in response to experimental myocardial ischemia. Am. J. Physiol. Heart Circ. Physiol. 303: H1446-H1458.
2. Wu, S., et al. 2013. Increased expression of fibroblast growth factor 21 (FGF-21) during chronic undernutrition causes growth hormone insensitivity in chondrocytes by inducing leptin receptor overlapping transcript (LEPROT) and leptin receptor overlapping transcript-like 1 (LEPROTL1) expression. J. Biol. Chem. 288: 27375-27383.
3. Yang, W., et al. 2017. N-3 polyunsaturated fatty acids increase hepatic fibroblast growth factor 21 sensitivity via a PPAR-γ-β-klotho pathway. Mol. Nutr. Food Res. E-published.
4. Joe, Y., et al. 2018. FGF-21 induced by carbon monoxide mediates metabolic homeostasis via the PERK/ATF4 pathway. FASEB J. 32: 2630-2643.
5. Cho, W., et al. 2023. Oroxylin-A alleviates hepatic lipid accumulation and apoptosis under hyperlipidemic conditions via AMPK/FGF-21 signaling. Biochem. Biophys. Res. Commun. 648: 59-65.
6. Zhu, J., et al. 2024. FGF-21 ameliorates septic liver injury by restraining proinflammatory macrophages activation through the autophagy/HIF-1α axis. J. Adv. Res. E-published.

RESEARCH USE

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

PROTOCOLS

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