SANTA CRUZ BIOTECHNOLOGY, INC.

FOXRED1 siRNA (m): sc-145230

BACKGROUND

FOXRED1 (FAD-dependent oxidoreductase domain-containing protein 1), also known as FP634, is a 486 amino acid single-pass membrane protein. Utilizing FAD as a cofactor, FOXRED1 may act as a chaperone protein essential for the function of mitochondrial complex I. Mutations to FOXRED1 may result in mitochondrial complex I deficiency (MT-C1D), which results in a wide range of clinical maladies from lethal neonatal disease to adult onset neurodegenerative disorders. Common phenotypes of MT-C1D include cardiomyopathy, liver disease, Leigh syndrome, Leber hereditary optic neuropathy, and some forms of Parkinson disease. FOXRED1 exists as three alternatively spliced isoforms and is encoded by a gene mapping to human chromosome 11q24.2. With approximately 135 million base pairs and 1,400 genes, chromosome 11 makes up around 4% of human genomic DNA and is considered a gene and disease association dense chromosome.

REFERENCES

1. Oh, J.J., et al. 1999. Identification of differentially expressed genes associated with HER-2/neu overexpression in human breast cancer cells. Nucleic Acids Res. 27: 4008-4017.
2. Martín, M.A., et al. 2005. Leigh syndrome associated with mitochondrial complex I deficiency due to a novel mutation in the NDUFS1 gene. Arch. Neurol. 62: 659-661.
3. Kruse, S.E., et al. 2008. Mice with mitochondrial complex I deficiency develop a fatal encephalomyopathy. Cell Metab. 7: 312-320.
4. Distelmaier, F., et al. 2009. Mitochondrial complex I deficiency: from organelle dysfunction to clinical disease. Brain 132: 833-842.
5. Bailey, S.D., et al. 2010. Variation at the NFATC2 locus increases the risk of thiazolidinedione-induced edema in the Diabetes REduction Assessment with Ramipril and Rosiglitazone Medication (DREAM) study. Diabetes Care 33: 2250-2253.
6. Fassone, E., et al. 2010. FOXRED1, encoding an FAD-dependent oxidoreductase complex-I-specific molecular chaperone, is mutated in infantile-onset mitochondrial encephalopathy. Hum. Mol. Genet. 19: 4837-4847.

CHROMOSOMAL LOCATION

Genetic locus: Foxred1 (mouse) mapping to 9 A4.

PRODUCT

FOXRED1 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 FOXRED1 shRNA Plasmid (m): sc-145230-SH and FOXRED1 shRNA (m) Lentiviral Particles: sc-145230-V as alternate gene silencing products.

For independent verification of FOXRED1 (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-145230A, sc-145230B and sc-145230C.

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

FOXRED1 siRNA (m) is recommended for the inhibition of FOXRED1 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

FOXRED1 (H-9): sc-377264 is recommended as a control antibody for monitoring of FOXRED1 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 FOXRED1 gene expression knockdown using RT-PCR Primer: FOXRED1 (m)-PR: sc-145230-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.