SANTA CRUZ BIOTECHNOLOGY, INC.

FDPS siRNA (m): sc-75012

BACKGROUND

FDPS (farnesyl diphosphate synthase), also known as FPS or FPPS, is a 419 amino acid enzyme belonging to the FPP/GGPP synthetase family. Localized to cytoplasm and peroxisome, FDPS expression is regulated by phorbol esters and polyunsaturated fatty acids. FDPS assists in cholesterol biosynthesis, post-translational protein modifications and synthesis of steroid hormones in the isoprenoid pathway. FDPS catalyzes the formation of farnesyl diphosphate (FPP), a precursor for several classes of essential metabolites including sterols, dolichols, carotenoids and ubiquinones. FDPS is inactivated by interferon-induced RSAD2, which may result in the disruption of lipid rafts at the plasma membrane. Existing as a homodimer, FDPS may have anti-viral effects when inactivated by RSAD2. Reduced activity of FDPS in liver may partly be the cause of Zellweger syndrome and neonatal adrenoleukodystrophy, both of which are known to be peroxisomal deficiency diseases.

REFERENCES

1. Guidi, C., et al. 2006. The isoprenoid pathway in the ectomycorrhizal fungus *Tuber borchii* Vittad: cloning and characterisation of the tbhmgr, tbfpps and tbsqs genes. Curr. Genet. 50: 393-404.
2. Mao, J., et al. 2006. Solid-state NMR, crystallographic, and computational investigation of bisphosphonates and farnesyl diphosphate synthase-bisphosphonate complexes. J. Am. Chem. Soc. 128: 14485-14497.
3. Leon, A., et al. 2006. Isoprenoid biosynthesis as a drug target: bisphosphonate inhibition of *Escherichia coli* K12 growth and synergistic effects of fosmidomycin. J. Med. Chem. 49: 7331-7341.
4. Cusson, M., et al. 2006. Characterization and tissue-specific expression of two lepidopteran farnesyl diphosphate synthase homologs: implications for the biosynthesis of ethyl-substituted juvenile hormones. Proteins 65: 742-758.
5. Levy, M.E., et al. 2007. Farnesyl diphosphate synthase: a novel genotype association with bone mineral density in elderly women. Maturitas 57: 247-252.

CHROMOSOMAL LOCATION

Genetic locus: Fdps (mouse) mapping to 3 F1.

PRODUCT

FDPS 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 FDPS shRNA Plasmid (m): sc-75012-SH and FDPS shRNA (m) Lentiviral Particles: sc-75012-V as alternate gene silencing products.

For independent verification of FDPS (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-75012A, sc-75012B and sc-75012C.

PROTOCOLS

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

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

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

FDPS (104J2E): sc-517603 is recommended as a control antibody for monitoring of FDPS 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 FDPS gene expression knockdown using RT-PCR Primer: FDPS (m)-PR: sc-75012-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.