SANTA CRUZ BIOTECHNOLOGY, INC.

CYP4F2 siRNA (h): sc-60488

BACKGROUND

The cytochrome P450 proteins are monooxygenases that catalyze many reactions involved in drug metabolism and synthesis of cholesterol, steroids and other lipids. P450 enzymes are classified into subfamilies based on their sequence similarities. CYP4F isoforms are involved in the oxidation of important cellular mediators, such as leukotriene B4 (LTB4) and prostaglandins. CYP4F2 catalyzes ω-hydroxylation of LTB4 to a less potent proinflammatory eicosanoid, 20-OH-LTB4, as well as arachidonic acid. CYP4F2 is expressed in liver and kidney. Its expression is repressed by peroxisomal proliferators and induced by retinoic acid. X-linked adrenoleukodystrophy (X-ALD) is a severe neurodegenerative disorder biochemically characterized by elevated levels of very long-chain fatty acids (VLCFA). CYP4F2 participates in the ω-hydroxylation of VLCFAs, which may provide an alternative mode of treatment for X-ALD patients.

REFERENCES

1. Kikuta, Y., et al. 1999. Expression and molecular cloning of human liver leukotriene B4 ω-hydroxylase (CYP4F2) gene. DNA Cell Biol. 18: 723-730.
2. Kikuta, Y., et al. 2000. Characterization of human liver leukotriene B4 ω-hydroxylase P450 (CYP4F2). J. Biochem. 127: 1047-1052.
3. Zhang, X., et al. 2000. Promoter activity and regulation of the CYP4F2 leukotriene B4 ω-hydroxylase gene by peroxisomal proliferators and retinoic acid in Hep G2 cells. Arch. Biochem. Biophys. 378: 364-376.
4. Zhang, X. and Hardwick, J.P. 2001. Regulation of CYP4F2 leukotriene B4 ω-hydroxylase by retinoic acids in Hep G2 cells. Biochem. Biophys. Res. Commun. 279: 864-871.
5. Kikuta, Y., et al. 2002. Prostaglandin and leukotriene ω-hydroxylases. Prostaglandins Other Lipid Mediat. 68: 345-362.
6. Le Quéré, V., et al. 2004. Human CYP4F3s are the main catalysts in the oxidation of fatty acid epoxides. J. Lipid Res. 45: 1446-1458.
7. Sanders, R.J., et al. 2006. ω-oxidation of very long-chain fatty acids in human liver microsomes. Implications for X-linked adrenoleukodystrophy. J. Biol. Chem. 281: 13180-13187.

CHROMOSOMAL LOCATION

Genetic locus: CYP4F2 (human) mapping to 19p13.12.

PRODUCT

CYP4F2 siRNA (h) 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 CYP4F2 shRNA Plasmid (h): sc-60488-SH and CYP4F2 shRNA (h) Lentiviral Particles: sc-60488-V as alternate gene silencing products.

For independent verification of CYP4F2 (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-60488A, sc-60488B and sc-60488C.

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

CYP4F2 siRNA (h) is recommended for the inhibition of CYP4F2 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 CYP4F2 gene expression knockdown using RT-PCR Primer: CYP4F2 (h)-PR: sc-60488-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.