SANTA CRUZ BIOTECHNOLOGY, INC.

CYP4F22 siRNA (h): sc-97463

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The Power to Question

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. CYP4F22 (cytochrome P450, family 4, subfamily F, polypeptide 22), also known as LI3, is a 531 amino acid peripheral membrane protein that is expressed in epidermis and belongs to the cytochrome P450 family. Localized to both the microsome and the endoplasmic reticulum, CYP4F22 utilizes heme as a cofactor. Mutations in the gene encoding CYP4F22 are the cause of ichthyosis lamellar type 3 (LI3), a skin disorder characterized by abnormal cornification of the epidermis.

REFERENCES

1. Nelson, D.R., Kamataki, T., Waxman, D.J., Guengerich, F.P., Estabrook, R.W., Feyereisen, R., Gonzalez, F.J., Coon, M.J., Gunsalus, I.C. and Gotoh, O. 1993. The P450 superfamily: update on new sequences, gene mapping, accession numbers, early trivial names of enzymes, and nomenclature. DNA Cell Biol. 12: 1-51.
2. Simpson, A.E. 1997. The cytochrome P450 4 (CYP4) family. Gen. Pharmacol. 28: 351-359.
3. Nelson, D.R., Zeldin, D.C., Hoffman, S.M., Maltais, L.J., Wain, H.M. and Nebert, D.W. 2004. Comparison of cytochrome P450 (CYP) genes from the mouse and human genomes, including nomenclature recommendations for genes, pseudogenes and alternative-splice variants. Pharmacogenetics 14: 1-18.
4. Lefèvre, C., Bouadjar, B., Ferrand, V., Tadini, G., Megarbane, A., Lathrop, M., Prud'homme, J.F. and Fischer, J. 2006. Mutations in a new cytochrome P450 gene in lamellar ichthyosis type 3. Hum. Mol. Genet. 15: 767-776.
5. Online Mendelian Inheritance in Man, OMIM™. 2007. Johns Hopkins University, Baltimore, MD. MIM Number: 611495. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
6. Nilsson, T., Ivanov, I.V. and Oliw, E.H. 2010. LC-MS/MS analysis of epoxyalcohols and epoxides of arachidonic acid and their oxygenation by recombinant CYP4F8 and CYP4F22. Arch. Biochem. Biophys. 494: 64-71.
7. Nebert, D.W., Nelson, D.R., Coon, M.J., Estabrook, R.W., Feyereisen, R., Fujii-Kuriyama, Y., Gonzalez, F.J., Guengerich, F.P., Gunsalus, I.C. and Johnson, E.F. 1991. The P450 superfamily: update on new sequences, gene mapping, and recommended nomenclature. DNA Cell Biol. 10: 1-14.

CHROMOSOMAL LOCATION

Genetic locus: CYP4F22 (human) mapping to 19p13.12.

PROTOCOLS

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

PRODUCT

CYP4F22 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 CYP4F22 shRNA Plasmid (h): sc-97463-SH and CYP4F22 shRNA (h) Lentiviral Particles: sc-97463-V as alternate gene silencing products.

For independent verification of CYP4F22 (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-97463A, sc-97463B and sc-97463C.

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

CYP4F22 siRNA (h) is recommended for the inhibition of CYP4F22 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 CYP4F22 gene expression knockdown using RT-PCR Primer: CYP4F22 (h)-PR: sc-97463-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.