SANTA CRUZ BIOTECHNOLOGY, INC.

CYP51A1 siRNA (m): sc-142739

BACKGROUND

P450 enzymes constitute a family of monooxygenase enzymes that are involved in the metabolism of a wide array of endogenous and xenobiotic compounds. Several P450 enzymes have been classified by sequence similarities as members of the CYP1A and CYP2A subfamilies. CYP51A1 (cytochrome P450, family 51, subfamily A, polypeptide 1), also known as LDM (lanosterol 14-α demethylase) or cytochrome P450-14DM, is a 503 amino acid protein localized to endoplasmic reticulum membrane. CYP51A1 is an important enzyme for zymosterol and steroid biosynthesis. CYP51A1 catalyzes C14-demethylation of lanosterol, transforming lanosterol into 4,4'-dimethyl cholesta-8,14,24-triene-3-β-ol. CYP51A1 is ubiquitously expressed, with highest levels found in liver, ovary, testis, lung, kidney and prostate.

REFERENCES

1. Strömstedt, M., et al. 1996. The ubiquitously expressed human CYP51 encodes lanosterol 14 α-demethylase, a cytochrome P450 whose expression is regulated by oxysterols. Arch. Biochem. Biophys. 329: 73-81.
2. Rozman, D., et al. 1996. Structure and mapping of the human lanosterol 14α-demethylase gene (CYP51) encoding the cytochrome P450 involved in cholesterol biosynthesis; comparison of exon/intron organization with other mammalian and fungal CYP genes. Genomics 38: 371-381.
3. Halder, S.K., et al. 2002. A cAMP-responsive element binding site is essential for sterol regulation of the human lanosterol 14α-demethylase gene (CYP51). Mol. Endocrinol. 16: 1853-1863.
4. Zheng, Y.H., et al. 2003. Nef increases the synthesis of and transports cholesterol to lipid rafts and HIV-1 progeny virions. Proc. Natl. Acad. Sci. USA 100: 8460-8465.
5. Nelson, D.R., et al. 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.

CHROMOSOMAL LOCATION

Genetic locus: Cyp51 (mouse) mapping to 5 A1.

PRODUCT

CYP51A1 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 CYP51A1 shRNA Plasmid (m): sc-142739-SH and CYP51A1 shRNA (m) Lentiviral Particles: sc-142739-V as alternate gene silencing products.

For independent verification of CYP51A1 (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-142739A, sc-142739B and sc-142739C.

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.

RAPPLICATIONS

CYP51A1 siRNA (m) is recommended for the inhibition of CYP51A1 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor CYP51A1 gene expression knockdown using RT-PCR Primer: CYP51A1 (m)-PR: sc-142739-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

ESEARCH USE

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