SANTA CRUZ BIOTECHNOLOGY, INC.

CYP2A7 siRNA (h): sc-106852

BACKGROUND

The cytochrome P450 proteins (CYPs) are monooxygenases that catalyze reactions involved in both drug metabolism and in the synthesis of cholesterol, steroids and other lipids. P450 enzymes are classified into subfamilies, such as CYP1A and CYP2A, based on their sequence similarities. CYP2A7 (cytochrome P450 2A7), also known as CPA7, CPAD, CYPIIA7 or P450-IIA4, is a 494 amino acid peripheral membrane protein that belongs to the CYP2A subfamily of cytochrome P450 proteins. Localized to the endoplasmic reticulum, CYP2A7 can be induced to high levels in liver in response to foreign compounds, such as carcinogens, pesticides and drugs. CYP2A7 functions as a hydroxylase that uses a heme group to catalyze the oxidation of target flavoproteins. The gene encoding CYP2A7 maps to human chromosome 19q13.2.

REFERENCES

1. Yamano, S., et al. 1990. The CYP2A3 gene product catalyzes coumarin 7-hydroxylation in human liver microsomes. Biochemistry 29: 1322-1329.
2. Fernandez-Salguero, P., et al. 1995. A genetic polymorphism in coumarin 7-hydroxylation: sequence of the human CYP2A genes and identification of variant CYP2A6 alleles. Am. J. Hum. Genet. 57: 651-660.
3. Fernandez-Salguero, P., et al. 1995. The CYP2A gene subfamily: species differences, regulation, catalytic activities and role in chemical carcinogenesis. Pharmacogenetics 5: S123-S128.
4. Su, T., et al. 2000. Human cytochrome P450 CYP2A13: predominant expression in the respiratory tract and its high efficiency metabolic activation of a tobacco-specific carcinogen, 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone. Cancer Res. 60: 5074-5079.
5. Oscarson, M., et al. 2002. Characterization of a novel CYP2A7/CYP2A6 hybrid allele (CYP2A6*12) that causes reduced CYP2A6 activity. Hum. Mutat. 20: 275-283.
6. 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: CYP2A7 (human) mapping to 19q13.2.

PRODUCT

CYP2A7 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 CYP2A7 shRNA Plasmid (h): sc-106852-SH and CYP2A7 shRNA (h) Lentiviral Particles: sc-106852-V as alternate gene silencing products.

For independent verification of CYP2A7 (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-106852A, sc-106852B and sc-106852C.

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

CYP2A7 siRNA (h) is recommended for the inhibition of CYP2A7 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 CYP2A7 gene expression knockdown using RT-PCR Primer: CYP2A7 (h)-PR: sc-106852-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 or our catalog for detailed protocols and support products.