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CYP2D6 siRNA (h): sc-41489

BACKGROUND

The P450II family comprises at least five subfamilies, designated A through E by the system of nomenclature recommended by an international committee. The P450IID subfamily comprises at least two genes in the rat, one of which is highly specific for debrisoquine 4-hydroxylase activity. An association of this gene with lung cancer has been found. Enhanced CYP2D6 activity has been related to malignancies of the bladder, liver, pharynx and stomach, and especially to cigarette-smoking-induced lung cancer. The data suggests that enhanced CYP2D6-mediated metabolism of one or more dietary and other environmental agents, to form a reactive intermediate, plays a role in cancer initiation and/or promotion in various tissues. CYP2D6 polymorphism, which is responsible for the variation in metabolism of debrisoquine 4-hydroxylase, is important in the metabolism of more than 30 drugs and environmental chemicals, including as much as 20% of all commonly prescribed drugs. The gene which encodes CYP2D6 maps to human chromosome 22q13.2.

REFERENCES

1. Nebert, D.W., et al. 1987. The P450 gene superfamily: recommended nomenclature. *DNA* 6: 1-11.
2. Roots, I., et al. 1988. Debrisoquine hydroxylation phenotype, acetylation phenotype, and ABO blood groups as genetic host factors of lung cancer risk. *Klin. Wochenschr.* 66: 87-97.
3. Law, M.R., et al. 1989. Debrisoquine metabolism and genetic predisposition to lung cancer. *Br. J. Cancer* 59: 686-687.
4. Gough, A.C., et al. 1993. Localization of the CYP2D gene locus to human chromosome 22q13.1 by polymerase chain reaction, *in situ* hybridization, and linkage analysis. *Genomics* 15: 430-432.
5. Online Mendelian Inheritance in Man, OMIM™. 2003. Johns Hopkins University, Baltimore, MD. MIM Number: 124030. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

CHROMOSOMAL LOCATION

Genetic locus: CYP2D6 (human) mapping to 22q13.2.

PRODUCT

CYP2D6 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see CYP2D6 shRNA Plasmid (h): sc-41489-SH and CYP2D6 shRNA (h) Lentiviral Particles: sc-41489-V as alternate gene silencing products.

For independent verification of CYP2D6 (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-41489A, sc-41489B and sc-41489C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

CYP2D6 siRNA (h) is recommended for the inhibition of CYP2D6 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 μ M in 66 μ l. 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

CYP2D6 (2K6): sc-130366 is recommended as a control antibody for monitoring of CYP2D6 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 CYP2D6 gene expression knockdown using RT-PCR Primer: CYP2D6 (h)-PR: sc-41489-PR (20 μ l, 591 bp). 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.