SANTA CRUZ BIOTECHNOLOGY, INC.

CYP2F1 siRNA (h): sc-62182

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The Power to Question

BACKGROUND

CYP2F1 (cytochrome P450 2F1) is a human-specific membrane-bound protein usually localized to the endoplasmic reticulum membrane. Cytochromes, which are incredibly polymorphic, generally catalyze redox reactions. CYP2F1 is a lung-specific cytochrome P450 (pigment at 450 nm) that is involved in metabolizing potentially carcinogenic pneumotoxins. Its polymorphic nature likely has an impact on the sensitivity of an individual to such toxins. Specifically within Clara cells, CYP2F1 converts Skatole (3-methylindole) to 3-methyleneindolenine, an electrophile that disrupts cell functions by forming dangerous protein adducts. Skatole has been used to supplement flavor in cigarettes. CYP2F2 is the murine homolog of human CYP2F1.

REFERENCES

1. Thomas, R.D., et al. 2006. Cytochrome P450 expression and metabolic activation of cooked food mutagen 2-amino-1-methyl-6-phenylimidazo[4,5-b]pyridine (PhIP) in MCF10A breast epithelial cells. Chem. Biol. Interact. 160: 204-216.
2. Tournel, G., et al. 2007. Molecular analysis of the CYP2F1 gene: identification of a frequent non-functional allelic variant. Mutat. Res. 617: 79-89.
3. Allagui, M.S., et al. 2007. Lithium toxicity and expression of stress-related genes or proteins in A549 cells. Biochim. Biophys. Acta 1773: 1107-1115.
4. Bièche, I., et al. 2007. Reverse transcriptase-PCR quantification of mRNA levels from cytochrome (CYP)1, CYP2 and CYP3 families in 22 different human tissues. Pharmacogenet. Genomics 17: 731-742.
5. Tournel, G., et al. 2007. CYP2F1 genetic polymorphism: Identification of interethnic variations. Xenobiotica 37: 1433-1438.
6. Kartha, J.S., et al. 2007. Mechanism-based inactivation of lung-selective cytochrome P450 CYP2F enzymes. Drug Metab. Dispos. 36: 155-162.
7. Calaf, G.M., et al. 2007. Human drug metabolism genes in parathion-and estrogen-treated breast cells. Int. J. Mol. Med. 20: 875-881.

CHROMOSOMAL LOCATION

Genetic locus: CYP2F1 (human) mapping to 19q13.2.

PRODUCT

CYP2F1 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 CYP2F1 shRNA Plasmid (h): sc-62182-SH and CYP2F1 shRNA (h) Lentiviral Particles: sc-62182-V as alternate gene silencing products.

For independent verification of CYP2F1 (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-62182A, sc-62182B and sc-62182C.

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.

APPLICATIONS

CYP2F1 siRNA (h) is recommended for the inhibition of CYP2F1 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.

GENE EXPRESSION MONITORING

CYP2F1 (E-10): sc-377499 is recommended as a control antibody for monitoring of CYP2F1 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 CYP2F1 gene expression knockdown using RT-PCR Primer: CYP2F1 (h)-PR: sc-62182-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.