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SANTA CRUZ BIOTECHNOLOGY, INC.

CYP1A2 siRNA (h): sc-41485

BACKGROUND

CYP1A2, also called Cytochrome P450 1A2, is a heme-thiolate monooxygenase enzyme involved in the NADPH-dependent electron transport pathway of liver microsomes. A member of the cytochrome P450 family, CYP1A2 oxidizes fatty acids, steroids and xenobiotics. It is also involved in the metabolism of imiprimine, propranol and clozapine. CYP1A2 localizes to the membrane of the endoplasmic reticulum. It is induced by 3-methylcholanthrene, Insulin, modafinil and hyperforin and inhibited by many fluoroquinolone antibiotics, caffeine, fluvoxamine and cimetidine. In addition, the involvement of CYP1A2 in the metabolism of estrogen is associated with a reduced risk of breast cancer.

REFERENCES

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2. Sogawa, K., et al. 1985. Complete nucleotide sequence of a methylcholanthrene-inducible cytochrome P450 ($P450_d$) gene in the rat. J. Biol. Chem. 260: 5026-5032.
3. Yabusaki, Y., et al. 1985. Characterization of complementary DNA clones coding for two forms of 3-methylcholanthrene-inducible rat liver cytochrome P450. J. Biochem. 96: 793-804.
4. Haniu, M., et al. 1986. The primary structure of cytochrome $P450_d$ purified from rat liver microsomes: prediction of helical regions and domain analysis. Arch. Biochem. Biophys. 244: 323-337.
5. Cheng, K.C., et al. 1986. Amino-terminal sequence and structure of monoclonal antibody immunopurified cytochromes P-450. Biochemistry 25: 2397-2402.
6. Wölfel, C., et al. 1992. Stable expression of rat cytochrome P450IA2 cDNA and hydroxylation of 17 β-Estradiol and 2-aminofluorene in V79 Chinese hamster cells. Mol. Carcinog. 4: 489-498.
7. Yun, C.H., et al. 1992. Modification of cytochrome P450 1A2 enzymes by the mechanism-based inactivator 2-ethynylnaphthalene and the photoaffinity label 4-azidobiphenyl. Biochemistry 31: 10556-10563.

CHROMOSOMAL LOCATION

Genetic locus: CYP1A2 (human) mapping to 15q24.1.

PRODUCT

CYP1A2 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 CYP1A2 shRNA Plasmid (h): sc-41485-SH and CYP1A2 shRNA (h) Lentiviral Particles: sc-41485-V as alternate gene silencing products.

For independent verification of CYP1A2 (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-41485A, sc-41485B and sc-41485C.

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

CYP1A2 siRNA (h) is recommended for the inhibition of CYP1A2 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

CYP1A2 (3B8C1): sc-53614 is recommended as a control antibody for monitoring of CYP1A2 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 CYP1A2 gene expression knockdown using RT-PCR Primer: CYP1A2 (h)-PR: sc-41485-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.