SANTA CRUZ BIOTECHNOLOGY, INC.

CYP2J2 siRNA (h): sc-62184

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The Power to Question

BACKGROUND

The cytochrome P450 proteins are monooxygenases that catalyze many reactions involved in drug metabolism and synthesis of cholesterol, steroids and other lipids. CYP2J2 (cytochrome P450 2J2), also known as CPJ2, is a member of the cytochrome P450 protein superfamily. Localized to the ER (endoplasmic reticulum) and microsomal membranes, CYP2J2 is one of three cytochrome P450 enzymes that are responsible for metabolizing arachidonic acid to epoxyeicosatrienoic acids. Functioning via an NADPH-dependent olefin epoxidation, CYP2J2 epoxidizes endogenous cardiac arachidonic acid pools to four different isoforms of epoxyeicosatrienoic acid, all of which are important regulators of cardiovascular homeostasis and vascular tone. CYP2J2 is highly expressed in the heart with low levels of expression found in the liver, colon and kidneys. Upregulation of CYP2J2 by a c-Jun responsive pathway is thought to promote the neoplastic phenotype of certain carcinoma cells, implicating CYP2J2 in carcinogenesis.

REFERENCES

1. Ma, J., et al. 1998. Mapping of the CYP2J cytochrome P450 genes to human chromosome 1 and mouse chromosome 4. Genomics 49: 152-155.
2. King, L.M., et al. 2002. Cloning of CYP2J2 gene and identification of functional polymorphisms. Mol. Pharmacol. 61: 840-852.
3. Jiang, J.G., et al. 2005. Cytochrome P450 2J2 promotes the neoplastic phenotype of carcinoma cells and is upregulated in human tumors. Cancer Res. 65: 4707-4715.
4. Marden, N.Y., et al. 2005. Characterization of a c-Jun-responsive module in the 5'-flank of the human CYP2J2 gene that regulates transactivation. Biochem. J. 391: 631-640.

CHROMOSOMAL LOCATION

Genetic locus: CYP2J2 (human) mapping to 1p32.1.

PRODUCT

CYP2J2 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 CYP2J2 shRNA Plasmid (h): sc-62184-SH and CYP2J2 shRNA (h) Lentiviral Particles: sc-62184-V as alternate gene silencing products.

For independent verification of CYP2J2 (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-62184A, sc-62184B and sc-62184C.

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

CYP2J2 siRNA (h) is recommended for the inhibition of CYP2J2 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

CYP2J2 (D-6): sc-137127 is recommended as a control antibody for monitoring of CYP2J2 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 CYP2J2 gene expression knockdown using RT-PCR Primer: CYP2J2 (h)-PR: sc-62184-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Park, S.H., et al. 2017. Identification of acetylshikonin as the novel CYP2J2 inhibitor with anti-cancer activity in Hep G2 cells. Phytomedicine 24: 134-140.
2. Park, S.H., et al. 2018. The inhibitory potential of Broussochalcone A for the human cytochrome P450 2J2 isoform and its anti-cancer effects via FOXO3 activation. Phytomedicine 42: 199-206.
3. Lim, H.M., et al. 2022. Acetylshikonin, a novel CYP2J2 inhibitor, induces apoptosis in RCC cells via FOXO3 activation and ROS elevation. Oxid. Med. Cell. Longev. 2022: 9139338.

RESEARCH USE

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