SANTA CRUZ BIOTECHNOLOGY, INC.

CYP26A1 siRNA (m): sc-77074

BACKGROUND

The cytochrome P450 proteins (CYPs) are monooxygenases that catalyze many reactions involved in drug metabolism and synthesis of cholesterol, steroids, and other lipids. P450 enzymes are classified into subfamilies based on their sequence similarities. CYP26A1, also referred to as retinoic acid-4-hydroxylase, is a major retinoic acid catabolic enzyme. CYP26A1 plays an important role in protecting tailbud tissues from inappropriate exposure to retinoic acid. CYP26A1 transcription is epigenetically regulated by nuclear retinoic acid receptor β2. Mutations in the gene encoding for CYP26A1 are associated with caudal agenesis and spina bifida, imperforate anus, agenesis of the caudal portions of the digestive and urogenital tracts, and malformed lumbosacral skeletal elements. CYP26A1 is upregulated in adenomatous polyposis coli mouse adenomas, human FAP adenomas, human sporadic colon carcinomas, and in the intestine of adenomatous polyposis coli (apc^{mcr}) mutant zebrafish embryos.

REFERENCES

1. Abu-Abed, S., et al. 2003. Developing with lethal RA levels: genetic ablation of RARγ can restore the viability of mice lacking CYP26A1. Development 130: 1449-1459.
2. Sakai, Y., et al. 2004. CYP26A1 and CYP26C1 cooperate in degrading retinoic acid within the equatorial retina during later eye development. Dev. Biol. 276: 143-157.
3. Deak, K.L., et al. 2005. Analysis of ALDH1A2, CYP26A1, CYP26B1, CRABP1, and CRABP2 in human neural tube defects suggests a possible association with alleles in ALDH1A2. Birth Defects Res. Part A Clin. Mol. Teratol. 73: 868-875.
4. Idres, N., et al. 2005. Regulation of CYP26A1 expression by selective RAR and RXR agonists in human NB4 promyelocytic leukemia cells. Biochem. Pharmacol. 69: 1595-1601.
5. Kumarakulasingham, M., et al. 2005. Cytochrome P450 profile of colorectal cancer: identification of markers of prognosis. Clin. Cancer Res. 11: 3758-3765.
6. Loudig, O., et al. 2005. Transcriptional co-operativity between distant retinoic acid response |elements in regulation of CYP26A1 inducibility. Biochem. J. 392: 241-248.

CHROMOSOMAL LOCATION

Genetic locus: Cyp26a1 (mouse) mapping to 19 C2.

PRODUCT

CYP26A1 siRNA (m) 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 CYP26A1 shRNA Plasmid (m): sc-77074-SH and CYP26A1 shRNA (m) Lentiviral Particles: sc-77074-V as alternate gene silencing products.

For independent verification of CYP26A1 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-77074A, sc-77074B and sc-77074C.

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

CYP26A1 siRNA (m) is recommended for the inhibition of CYP26A1 expression in mouse 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

CYP26A1 (F27 P6 A1): sc-53618 is recommended as a control antibody for monitoring of CYP26A1 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 CYP26A1 gene expression knockdown using RT-PCR Primer: CYP26A1 (m)-PR: sc-77074-PR (20 µl, 598 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.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.