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# UGT1A5 siRNA (h): sc-44473

## BACKGROUND

Glucuronidation, an important bile acid detoxification pathway, is catalyzed by enzymes belonging to the UDP-glucuronosyltransferase (UGT) superfamily. UGT genes are classified into the UGT1A and UGT2B subfamilies. Although each subfamily and each isoform shows tissue-specific patterns of distribution, the underlying mechanisms for this tissue specificity have not been fully elucidated. The human UDP-glucuronosyltransferase 1 (UGT1) locus encodes at least ten UGT1A proteins (UGT1A1-UGT1A10) that play a prominent role in drug and xenobiotic metabolism. Research indicates that nuclear receptors such as pregnane X receptor (PXR), constitutive androstane receptor (CAR) and peroxisome proliferator-activated receptor (PPAR) can regulate UGTs, which may contribute to the tissue-specific expression pattern of UGTs. Deficiency in the expression and/or activity of UGTs may lead to genetic and acquired diseases such as Crigler-Najjar syndrome and Gilbert syndrome. Based on their ability to catalyze the glucuronidation of xenobiotics and endobiotics, UGTs play a critical role in hormonal homeostasis, energy metabolism, bilirubin clearance and xenobiotic detoxification.

## REFERENCES

1. Moghrabi, N., Sutherland, L., Wooster, R., Povey, S., Boxer, M. and Burchell, B. 1992. Chromosomal assignment of human phenol and bilirubin UDP-glucuronosyltransferase genes (UGT1A-subfamily). *Ann. Hum. Genet.* 56: 81-91.
2. Owens, I.S., Ritter, J.K., Yeatman, M.T. and Chen, F. 1996. The novel UGT1 gene complex links bilirubin, xenobiotics and therapeutic drug metabolism by encoding UDP-glucuronosyltransferase isozymes with a common carboxyl terminus. *J. Pharmacokinet. Biopharm.* 24: 491-508.
3. Ciotti, M., Obaray, R., Martin, M.G. and Owens, I.S. 1997. Genetic defects at the UGT1 locus associated with Crigler-Najjar type I disease, including a prenatal diagnosis. *Am. J. Med. Genet.* 68:173-178.
4. Strassburg, C.P., Manns, M.P. and Tukey, R.H. 1997. Differential downregulation of the UDP-glucuronosyltransferase 1A locus is an early event in human liver and biliary cancer. *Cancer Res.* 57:2979-2985.
5. Thomas, S.S., Li, S.S., Lampe, J.W., Potter, J.D. and Bigler, J. 2006. Genetic variability, haplotypes and htSNPs for exons 1 at the human UGT1A locus. *Hum. Mutat.* 27: 717.

## CHROMOSOMAL LOCATION

Genetic locus: UGT1A5 (human) mapping to 2q37.1.

## PRODUCT

UGT1A5 siRNA (h) is a target-specific 19-25 nt siRNA designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see UGT1A5 shRNA Plasmid (h): sc-44473-SH and UGT1A5 shRNA (h) Lentiviral Particles: sc-44473-V as alternate gene silencing products.

## PROTOCOLS

See our web site at [www.scbt.com](http://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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

UGT1A5 siRNA (h) is recommended for the inhibition of UGT1A5 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  $\mu$ M in 66  $\mu$ 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

UGT1A (B-4): sc-271268 is recommended as a control antibody for monitoring of UGT1A5 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 $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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 $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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 UGT1A5 gene expression knockdown using RT-PCR Primer: UGT1A5 (h)-PR: sc-44473-PR (20  $\mu$ l). 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.