

UGT2A1 siRNA (h): sc-89047

BACKGROUND

UDP-glucuronosyltransferase isoenzymes (UGTs) catalyze the glucuronidation of small lipophilic molecules, which regulates the bioactivity and metabolic fate of a wide range of endo- and xenobiotics. Glucuronidation increases the polarity of lipophilic molecules and facilitates their entry into aqueous compartments and their ultimate excretion. In essence, glucuronidation provides a protective function by terminating or attenuating the biological activity of its substrates. UGT2A1 (UDP-glucuronosyltransferase 2A1), also known as olfactory UGT, is a 527 amino acid single-pass membrane protein that is specifically expressed in olfactory tissue. UGT2A1 appears to have a broad substrate spectrum of targets to conjugate, including odorants, androgens, drugs and carcinogens. It is thought that UGT2A1 plays a role in olfactory perception and protection of the neural system against hazardous chemicals. There are three isoforms of UGT2A1 that are produced as a result of alternative splicing events.

REFERENCES

- Jedlitschky, G., et al. 1999. Cloning and characterization of a novel human olfactory UDP-glucuronosyltransferase. *Biochem. J.* 340: 837-843.
- Heydel, J., et al. 2001. Rat olfactory bulb and epithelium UDP-glucuronosyltransferase 2A1 (UGT2A1) expression: *in situ* mRNA localization and quantitative analysis. *Brain Res. Mol. Brain Res.* 90: 83-92.
- Leclerc, S., et al. 2002. Glucuronidation of odorant molecules in the rat olfactory system: activity, expression and age-linked modifications of UDP-glucuronosyltransferase isoforms, UGT1A6 and UGT2A1, and relation to mitral cell activity. *Brain Res. Mol. Brain Res.* 107: 201-213.
- Online Mendelian Inheritance in Man, OMIM[™]. 2003. Johns Hopkins University, Baltimore, MD. MIM Number: 604716. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
- Thum, T., et al. 2006. Expression of xenobiotic metabolizing enzymes in different lung compartments of smokers and nonsmokers. *Environ. Health Perspect.* 114: 1655-1661.
- Sten, T., et al. 2009. UDP-glucuronosyltransferases (UGTs) 2B7 and UGT2B17 display converse specificity in testosterone and epitestosterone glucuronidation, whereas UGT2A1 conjugates both androgens similarly. *Drug Metab. Dispos.* 37: 417-423.
- Sten, T., et al. 2009. UDP-glucuronosyltransferases in conjugation of 5 α - and 5 β -androstane steroids. *Drug Metab. Dispos.* 37: 2221-2227.
- Sneitz, N., et al. 2009. Human UDP-glucuronosyltransferase UGT2A2: cDNA construction, expression, and functional characterization in comparison with UGT2A1 and UGT2A3. *Pharmacogenet. Genomics* 19: 923-934.
- Bushey, R.T., et al. 2011. Characterization of UDP-glucuronosyltransferase 2A1 (UGT2A1) variants and their potential role in tobacco carcinogenesis. *Pharmacogenet. Genomics* 21: 55-65.

PROTOCOLS

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

CHROMOSOMAL LOCATION

Genetic locus: UGT2A1 (human) mapping to 4q13.2.

PRODUCT

UGT2A1 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see UGT2A1 shRNA Plasmid (h): sc-89047-SH and UGT2A1 shRNA (h) Lentiviral Particles: sc-89047-V as alternate gene silencing products.

For independent verification of UGT2A1 (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-89047A, sc-89047B and sc-89047C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

UGT2A1 siRNA (h) is recommended for the inhibition of UGT2A1 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 μ M in 66 μ 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor UGT2A1 gene expression knockdown using RT-PCR Primer: UGT2A1 (h)-PR: sc-89047-PR (20 μ 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.