SANTA CRUZ BIOTECHNOLOGY, INC.

OAT2 siRNA (h): sc-95603

BACKGROUND

The organic anion transporter (OAT) family of proteins is comprised of OAT1 (SLC22A6), OAT2 (SLC22A7), OAT3 (SLC22A8), OAT4 (SLC22A11), OAT5 (SLC22A19), OAT6 (SLC22A20) and URAT1 (SLC22A12). The OAT family mediates the absorption, distribution and excretion of endogenous metabolites, such as urate and acidic neurotransmitter metabolites, as well as a multitude of exogenous compounds, including antibiotics, antihypertensives, antivirals, anti-inflammatory drugs, diuretics and uricosurics. Members of the OAT family are mainly located in kidney with some specific members also being expressed in liver, placenta and brain. Disruption of OAT function in any of these organs may lead to renal, hepatic, neurological and fetal toxicity and diseases. OAT2 is highly expressed in liver, but also shows expression in kidney. OAT2 is a multi-specific exchanger that has been shown to mediate the transport of propionate, bumetanide, estrone sulfate, glutarate, dehydroepiandrosterone sulfate, allopurinol, prostaglandin E2, 5-fluorouracil, paclitaxel and L-ascorbic acid. The OAT2 isoform also displays a sex- and species-related differential expression with a greater expression in females due to a strong androgen inhibition and weak estrogen and progesterone stimulation.

REFERENCES

1. Cha, S.H., et al. 2002. Downregulation of organic anion transporter 2 mRNA expression by nitric oxide in primary cultured rat hepatocytes. IUBMB Life 54: 129-135.
2. Kobayashi, Y., et al. 2002. Isolation, characterization and differential gene expression of multispecific organic anion transporter 2 in mice. Mol. Pharmacol. 62: 7-14.
3. Khamdang, S., et al. 2003. Interaction of human and rat organic anion transporter 2 with various cephalosporin antibiotics. Eur. J. Pharmacol. 465: 1-7.
4. Kobayashi, Y., et al. 2005. Transport mechanism and substrate specificity of human organic anion transporter 2 (hOat2 [SLC22A7]). J. Pharm. Pharmacol. 57: 573-578.
5. Ljubojevic, M., et al. 2007. Renal expression of organic anion transporter OAT2 in rats and mice is regulated by sex hormones. Am. J. Physiol. Renal Physiol. 292: F361-F372.

CHROMOSOMAL LOCATION

Genetic locus: SLC22A7 (human) mapping to 6p21.1.

PRODUCT

OAT2 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 OAT2 shRNA Plasmid (h): sc-95603-SH and OAT2 shRNA (h) Lentiviral Particles: sc-95603-V as alternate gene silencing products.

For independent verification of OAT2 (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-95603A, sc-95603B and sc-95603C.

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

OAT2 siRNA (h) is recommended for the inhibition of OAT2 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor OAT2 gene expression knockdown using RT-PCR Primer: OAT2 (h)-PR: sc-95603-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.

PROTOCOLS

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