



OCT1 siRNA (h): sc-42552

BACKGROUND

Organic cation transporters (OCT) are expressed in the plasma membrane of epithelial cells from a wide range of tissues, where they function in the elimination of endogenous amines, cationic drugs and other xenobiotics. The structure of OCTs consists of a 12-transmembrane-domain structure and a large extracellular hydrophilic loop. In humans, OCT1 is primarily expressed in the liver while OCT2 is expressed in the kidney. OCT3 is expressed in the placenta, skeletal muscle, prostate, aorta and liver. OCT3, also known as extraneuronal monoamine transporter, is widely expressed in different regions of the brain including the hippocampus, cerebellum and cerebral cortex. OCT3 mediates the uptake of several neuroactive agents, including dopamine, and may play an important role in the disposition of neurotransmitters and cationic neurotoxins in the brain. The genes encoding human OCT1-3 map to a conserved cluster at chromosome 6q26-q27.

REFERENCES

1. Gorboulev, V., et al. 1997. Cloning and characterization of two human poly-specific organic cation transporters. *DNA Cell Biol.* 16: 871-881.
2. Koepsell, H. 1998. Organic cation transporters in intestine, kidney, liver, and brain. *Annu. Rev. Physiol.* 60: 243-266.
3. Wu, X., et al. 1998. Identity of the organic cation transporter OCT3 as the extraneuronal monoamine transporter (uptake2) and evidence for the expression of the transporter in the brain. *J. Biol. Chem.* 273: 32776-32786.
4. Dresser, M.J., et al. 1999. Molecular and functional characteristics of clones human organic cation transporters. *Pharm. Biotechnol.* 12: 441-469.
5. Verhaagh, S., et al. 1999. Cloning of the mouse and human solute carrier 22a3 (Slc22a3/SLC22A) identifies a conserved cluster three organic cation transporters on mouse chromosome 17 and human 6q26-q27. *Genomics* 55: 209-218.

CHROMOSOMAL LOCATION

Genetic locus: SLC22A1 (human) mapping to 6q25.3.

PRODUCT

OCT1 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 OCT1 shRNA Plasmid (h): sc-42552-SH and OCT1 shRNA (h) Lentiviral Particles: sc-42552-V as alternate gene silencing products.

For independent verification of OCT1 (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-42552A, sc-42552B and sc-42552C.

PROTOCOLS

See our web site at 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 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

OCT1 siRNA (h) is recommended for the inhibition of OCT1 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 OCT1 gene expression knockdown using RT-PCR Primer: OCT1 (h)-PR: sc-42552-PR (20 μ l, 531 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Segal, E.D., et al. 2011. Relevance of the OCT1 transporter to the anti-neoplastic effect of biguanides. *Biochem. Biophys. Res. Commun.* 414: 694-699.
2. Taylor, A., et al. 2021. Choline transporter-like proteins 1 and 2 are newly identified plasma membrane and mitochondria ethanolamine transporters. *J. Biol. Chem.* 296: 100604
3. Adu-Gyamfi, M., et al. 2024. The role of NOX2-derived reactive oxygen species in the induction of endothelin-converting enzyme-1 by Angiotensin II. *Antioxidants* 13: 500.

RESEARCH USE

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