

UT-A siRNA (m): sc-154952

BACKGROUND

Water balance is tightly regulated in the kidneys. Through urinary concentration mechanisms, the kidney prevents the unnecessary excrement of water, thereby protecting the body from dehydration. UT-A (urea transporter, kidney), also known as SLC14A2 and HUT2, is a 920 amino acid multi-pass membrane protein that functions as a specialized low-affinity vasopressin-regulated urea-transporter. Expressed in the inner medulla of the kidney and localized to the apical membrane, UT-A mediates rapid transepithelial urea transport across the inner medullary collecting duct. There are two isoforms of UT-A that are produced as a result of alternative splicing events. Isoform 1 interacts with Snapin, a SNARE-associated protein, which is thought to help in its recruitment to the plasma membrane. Interestingly, isoform 1 expression is induced by low protein in the diet, whereas isoform 2 expression is induced by dehydration.

REFERENCES

1. Olivès, B., et al. 1996. Molecular characterization of a new urea transporter in the human kidney. *FEBS Lett.* 386: 156-160.
2. Bagnasco, S.M., et al. 2000. Differential expression of individual UT-A urea transporter isoforms in rat kidney. *J. Am. Soc. Nephrol.* 11: 1980-1986.
3. Sands, J.M. 2000. Regulation of urea transporter proteins in kidney and liver. *Mt. Sinai J. Med.* 67: 112-119.
4. Bagnasco, S.M., et al. 2001. Cloning and characterization of the human urea transporter UT-A1 and mapping of the human Slc14a2 gene. *Am. J. Physiol. Renal Physiol.* 281: F400-F406.
5. Nakayama, Y., et al. 2001. Cloning of the rat Slc14a2 gene and genomic organization of the UT-A urea transporter. *Biochim. Biophys. Acta* 1518: 19-26.
6. Fenton, R.A., et al. 2002. Structure and characterization of the mouse UT-A gene (Slc14a2). *Am. J. Physiol. Renal Physiol.* 282: F630-F638.
7. Fenton, R.A., et al. 2002. Characterization of mouse urea transporters UT-A1 and UT-A2. *Am. J. Physiol. Renal Physiol.* 283: F817-F825.
8. Online Mendelian Inheritance in Man, OMIM[™]. 2005. Johns Hopkins University, Baltimore, MD. MIM Number: 601611. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
9. Mistry, A.C., et al. 2007. The UT-A1 urea transporter interacts with snapin, a SNARE-associated protein. *J. Biol. Chem.* 282: 30097-30106.

CHROMOSOMAL LOCATION

Genetic locus: Slc14a2 (mouse) mapping to 18 E3.

PRODUCT

UT-A siRNA (m) 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see UT-A shRNA Plasmid (m): sc-154952-SH and UT-A shRNA (m) Lentiviral Particles: sc-154952-V as alternate gene silencing 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

UT-A siRNA (m) is recommended for the inhibition of UT-A 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 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 UT-A gene expression knockdown using RT-PCR Primer: UT-A (m)-PR: sc-154952-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.

PROTOCOLS

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