SANTA CRUZ BIOTECHNOLOGY, INC.

UCK2 siRNA (m): sc-106664

BACKGROUND

UCK2 (uridine-cytidine kinase 2), also known as UK or UMPK, is a 261 amino acid protein that is expressed in testis and placenta and belongs to the uridine kinase family. Existing as a homotetramer, UCK2 uses ATP (and, to a lesser extent, GTP) to catalyze the phosphorylation of uridine and cytidine to uridine monophosphate and cytidine monophosphate, respectively. Via its catalytic activity, UCK2 plays a crucial role in the production of pyrimidine nucleoside triphosphates required for RNA and DNA synthesis. Human UCK2 shares 98% amino acid identity with its mouse counterpart, suggesting a conserved role between species. UCK2 exists as two alternatively spliced isoforms which are encoded by a gene that maps to human chromosome 1.

REFERENCES

1. Ruddle, F.H. and Creagan, R.P. 1975. Parasexual approaches to the genetics of man. Annu. Rev. Genet. 9: 407-486.
2. Ozaki, K., Kuroki, T., Hayashi, S. and Nakamura, Y. 1996. Isolation of three testis-specific genes (TSA303, TSA806, TSA903) by a differential mRNA display method. Genomics 36: 316-319.
3. Van Rompay, A.R., Norda, A., Lindєn, K., Johansson, M. and Karlsson, A. 2001. Phosphorylation of uridine and cytidine nucleoside analogs by two human uridine-cytidine kinases. Mol. Pharmacol. 59: 1181-1186.
4. Murata, D., Endo, Y., Obata, T., Sakamoto, K., Syouji, Y., Kadohira, M., Matsuda, A. and Sasaki, T. 2004. A crucial role of uridine/cytidine kinase 2 in antitumor activity of 3'-ethynyl nucleosides. Drug Metab. Dispos. 32: 1178-1182.
5. Suzuki, N.N., Koizumi, K., Fukushima, M., Matsuda, A. and Inagaki, F. 2004. Structural basis for the specificity, catalysis, and regulation of human uridine-cytidine kinase. Structure 12: 751-764.
6. Online Mendelian Inheritance in Man, OMIM™. 2005. Johns Hopkins University, Baltimore, MD. MIM Number: 609329. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
7. Aldenhoven, J., Chen, Y. and Moran, C. 2006. Assignment of UCK2, ATF3 and RGS18 from human chromosome 1 to porcine chromosomes 4, 9 and 10 with somatic and radiation hybrid panels. Cytogenet. Genome Res. 112: 341F.
8. Cheung, C.L., Chan, B.Y., Chan, V., Ikegawa, S., Kou, I., Ngai, H., Smith, D., Luk, K.D., Huang, Q.Y., Mori, S., Sham, P.C. and Kung, A.W. 2009. Pre-B-cell leukemia homeobox 1 (PBX1) shows functional and possible genetic association with bone mineral density variation. Hum. Mol. Genet. 18: 679-687.

CHROMOSOMAL LOCATION

Genetic locus: Uck2 (mouse) mapping to 1 H2.3.

PROTOCOLS

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

PRODUCT

UCK2 siRNA (m) 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 UCK2 shRNA Plasmid (m): sc-106664-SH and UCK2 shRNA (m) Lentiviral Particles: sc-106664-V as alternate gene silencing products.

For independent verification of UCK2 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-106664A, sc-106664B and sc-106664C.

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

UCK2 siRNA (m) is recommended for the inhibition of UCK2 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 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 UCK2 gene expression knockdown using RT-PCR Primer: UCK2 (m)-PR: sc-106664-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.