SANTA CRUZ BIOTECHNOLOGY, INC.

UCK1 siRNA (h): sc-92649

BACKGROUND

Uridine-cytidine kinases (UCK) have important roles for the phosphorylation of nucleoside analogs that may be important in chemotherapy of cancer. The UCK family consists of two members, UCK1 and UCK2, which are both expressed in many tumor cells. UCK1 (uridine-cytidine kinase 1), also known as URK1, uridine monophosphokinase 1 or cytidine monophosphokinase 1, is a 277 amino acid protein that is expressed in skeletal muscle, heart, liver and kidney. UCK1 uses ATP or GTP to catalyze the phosphorylation of uridine and cytidine to uridine monophosphate and cytidine monophosphate, respectively. Human UCK1 shares 92% amino acid identity with its mouse counterpart, suggesting a conserved role between species. UCK1 exists as two alternatively spliced isoforms which are encoded by a gene that maps to human chromosome 9.

REFERENCES

1. Kaneko, S., et al. 1998. Cloning, sequence analysis and expression of the basidiomycete *Lentinus edodes* gene UCK1, encoding UMP-CMP kinase, the homologue of *Saccharomyces cerevisae* URA6 gene. Gene 211: 259-266.
2. Van Rompay, A.R., et al. 2001. Phosphorylation of uridine and cytidine nucleoside analogs by two human uridine-cytidine kinases. Mol. Pharmacol. 59: 1181-1186.
3. Shimamoto, Y., et al. 2002. Sensitivity of human cancer cells to the new anticancer ribo-nucleoside TAS-106 is correlated with expression of uridine-cytidine kinase 2. Jpn. J. Cancer Res. 93: 825-833.
4. Suzuki, N.N., et al. 2003. Crystallization and preliminary X-ray analysis of human uridine-cytidine kinase 2. Acta Crystallogr. D Biol. Crystallogr. 59: 1477-1478.
5. Miyazaki, Y., et al. 2004. Target genes of the developmental regulator PRIB of the mushroom *Lentinula edodes*. Biosci. Biotechnol. Biochem. 68: 1898-1905.
6. Murata, D., et al. 2004. A crucial role of uridine/cytidine kinase 2 in antitumor activity of 3'-ethynyl nucleosides. Drug Metab. Dispos. 32: 1178-1182.
7. Suzuki, N.N., et al. 2004. Structural basis for the specificity, catalysis, and regulation of human uridine-cytidine kinase. Structure 12: 751-764.

CHROMOSOMAL LOCATION

Genetic locus: UCK1 (human) mapping to 9q34.13.

PRODUCT

UCK1 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 UCK1 shRNA Plasmid (h): sc-92649-SH and UCK1 shRNA (h) Lentiviral Particles: sc-92649-V as alternate gene silencing products.

For independent verification of UCK1 (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-92649A, sc-92649B and sc-92649C.

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

UCK1 siRNA (h) is recommended for the inhibition of UCK1 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.

GENE EXPRESSION MONITORING

UCK1 (E-9): sc-373940 is recommended as a control antibody for monitoring of UCK1 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor UCK1 gene expression knockdown using RT-PCR Primer: UCK1 (h)-PR: sc-92649-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.