

CMPK2 siRNA (h): sc-94433

BACKGROUND

CMPK2 (cytidine monophosphate (UMP-CMP) kinase 2, mitochondrial), also known as TYKi, thymidylate kinase family LPS-inducible member, TMPK2 (thymidine monophosphate kinase 2) or UMP-CMPK2, is a 449 amino acid mitochondrial protein and component of the salvage pathway for nucleotide synthesis. A member of the thymidylate kinase family, CMPK2 is abundantly expressed in leukemia cells and exists as four alternatively spliced isoforms. The gene encoding CMPK2 maps to human chromosome 2, which consists of 237 million bases, encodes over 1,400 genes and makes up approximately 8% of the human genome. A number of genetic diseases are linked to genes on chromosome 2. Harlequin ichthyosis, a rare and morbid skin deformity, is associated with mutations in the ABCA12 gene. The lipid metabolic disorder sitosterolemia is associated with ABCG5 and ABCG8. An extremely rare recessive genetic disorder, Alström syndrome, is due to mutations in the ALMS1 gene.

REFERENCES

1. Lee, C.G., et al. 1995. A unique member of the thymidylate kinase family that is induced during macrophage activation. *J. Immunol.* 154: 6094-6102.
2. Patel, S.B., et al. 1998. Mapping a gene involved in regulating dietary cholesterol absorption. The sitosterolemia locus is found at chromosome 2p21. *J. Clin. Invest.* 102: 1041-1044.
3. Shulenin, S., et al. 2001. An ATP-binding cassette gene (ABCG5) from the ABCG (White) gene subfamily maps to human chromosome 2p21 in the region of the Sitosterolemia locus. *Cytogenet. Cell Genet.* 92: 204-208.
4. Hearn, T., et al. 2002. Mutation of ALMS1, a large gene with a tandem repeat encoding 47 amino acids, causes Alström syndrome. *Nat. Genet.* 31: 79-83.
5. Kelsell, D.P., et al. 2005. Mutations in ABCA12 underlie the severe congenital skin disease harlequin ichthyosis. *Am. J. Hum. Genet.* 76: 794-803.
6. Xu, Y., et al. 2008. Human UMP-CMP kinase 2, a novel nucleoside monophosphate kinase localized in mitochondria. *J. Biol. Chem.* 283: 1563-1571.

CHROMOSOMAL LOCATION

Genetic locus: CMPK2 (human) mapping to 2p25.2.

PRODUCT

CMPK2 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 CMPK2 shRNA Plasmid (h): sc-94433-SH and CMPK2 shRNA (h) Lentiviral Particles: sc-94433-V as alternate gene silencing products.

For independent verification of CMPK2 (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-94433A, sc-94433B and sc-94433C.

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

CMPK2 siRNA (h) is recommended for the inhibition of CMPK2 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 CMPK2 gene expression knockdown using RT-PCR Primer: CMPK2 (h)-PR: sc-94433-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.