SANTA CRUZ BIOTECHNOLOGY, INC.

DTYMK siRNA (h): sc-94639

BACKGROUND

DTYMK (deoxythymidylate kinase (thymidylate kinase)), also known as CDC8, TMPK, TYMK or dTMP kinase, is a 212 amino acid protein that belongs to the thymidylate kinase family and is involved in pyrimidine metabolism. Specifically, DTYMK catalyzes the ATP-dependent conversion of dTMP (deoxythymidine monophosphate) to dTDP (deoxythymidine diphosphate), which then functions as one of the four nucleotides in DNA. Via its role in the catalytic creation of dTDP, DTYMK plays an important role in the pathway of DNA synthesis and is thought to be involved in cell cycle progression and cell growth. DTYMK expression levels peak during the S phase (synthesis phase) of the cell cycle, further supporting the role of DTYMK in DNA synthesis.

REFERENCES

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2. Su, J.Y., et al. 1991. Molecular cloning and expression of the human deoxythymidylate kinase gene in yeast. Nucleic Acids Res. 19: 823-827.
3. Huang, S.H., et al. 1994. Human dTMP kinase: gene expression and enzymatic activity coinciding with cell cycle progression and cell growth. DNA Cell Biol. 13: 461-471.
4. Van Rompay, A.R., et al. 2000. Phosphorylation of nucleosides and nucleoside analogs by mammalian nucleoside monophosphate kinases. Pharmacol. Ther. 87: 189-198.
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6. Ostermann, N., et al. 2003. Structures of human thymidylate kinase in complex with prodrugs: implications for the structure-based design of novel compounds. Biochemistry 42: 2568-2577.
7. Chaperon, D.N. 2006. Construction and complementation of in-frame deletions of the essential *Escherichia coli* thymidylate kinase gene. Appl. Environ. Microbiol. 72: 1288-1294.

CHROMOSOMAL LOCATION

Genetic locus: DTYMK (human) mapping to 2q37.3.

PRODUCT

DTYMK siRNA (h) 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see DTYMK shRNA Plasmid (h): sc-94639-SH and DTYMK shRNA (h) Lentiviral Particles: sc-94639-V as alternate gene silencing products.

RESEARCH USE

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

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

DTYMK siRNA (h) is recommended for the inhibition of DTYMK 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

DTYMK (B-8): sc-365925 is recommended as a control antibody for monitoring of DTYMK 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 DTYMK gene expression knockdown using RT-PCR Primer: DTYMK (h)-PR: sc-94639-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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