SANTA CRUZ BIOTECHNOLOGY, INC.

Thymidine Kinase siRNA (m): sc-72048

BACKGROUND

Thymidine Kinase (TK1) is a highly conserved phosphotransferase that is present in most living cells. Thymidine Kinase catalyzes the phosphorylation reaction: deoxythymidine + ATP = deoxythymidine 5'-phosphate + ADP; it is thus involved in the reaction chain to introduce deoxythymidine into the DNA. Thymidine Kinase is required for the action of many antiviral drugs, such as azidothymidine (AZT), and is is also used to select hybridoma cell lines in the production of monoclonal antibodies. Thymidine Kinase has many clinical applications as it is only present in anticipation of cell division. Because of this, Thymidine Kinase can be used as a proliferation marker in the diagnosis, treatment, and follow-up of malignant diseases, especially hematological malignancies. Thymidine Kinase may be observed as a monomer, dimer, trimer or tetramer.

REFERENCES

1. McDougall, J.K. 1970. Effects of adenoviruses on the chromosomes of normal human cells and cells trisomic for an E chromosome. Nature 225: 456-458.
2. Boone, C., Chen, T.R. and Ruddle, F.H. 1972. Assignment of three human genes to chromosomes (LDH-A to 11, TK to 17, and IDH to 20) and evidence for translocation between human and mouse chromosomes in somatic cell hybrids (Thymidine Kinase-lactate dehydrogenase A-isocitrate dehydrogenase-C-11, E-17, and F-20 chromosomes). Proc. Nat. Acad. Sci. USA 69: 510-514.
3. Chen, S., McDougall, J.K., Creagan, R.P., Lewis, V. and Ruddle, F.H. 1977. Genetic homology between man and the chimpanzee: syntenic relationships of genes for galactokinase and Thymidine Kinase and adenovirus-12-induced gaps using chimpanzee-mouse somatic cell hybrids. Somatic Cell Genet. 2: 205-213.

CHROMOSOMAL LOCATION

Genetic locus: Tk1 (mouse) mapping to 11 E2.

PRODUCT

Thymidine Kinase 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 Thymidine Kinase shRNA Plasmid (m): sc-72048-SH and Thymidine Kinase shRNA (m) Lentiviral Particles: sc-72048-V as alternate gene silencing products.

For independent verification of Thymidine Kinase (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-72048A, sc-72048B and sc-72048C.

PROTOCOLS

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

Thymidine Kinase siRNA (m) is recommended for the inhibition of Thymidine Kinase 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 Thymidine Kinase gene expression knockdown using RT-PCR Primer: Thymidine Kinase (m)-PR: sc-72048-PR (20 µl, 593 bp). 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.