SANTA CRUZ BIOTECHNOLOGY, INC.

Topo IIIα siRNA (h): sc-36699

BACKGROUND

DNA topoisomerases are nuclear enzymes that regulate the topological structure of DNA by transiently breaking and rejoining DNA strands. Although DNA topoisomerase I (Topo I) and Topo II relax both positive and negative supercoils, Topo III relaxes only negative supercoils. Topo IIIα exists as a long and a short isoform, which are produced by alternative splicing. Topo IIIα, which localizes to the nucleolus, is constitutively expressed and remains at high levels throughout the cell cycle in HL-60 cells. Topo IIIβ exists as three isoforms, β-1, β-2 and β-3, also produced by alternative splicing. Topo IIIβ-1 is expressed in testis, heart, and skeletal muscle, whereas Topo IIIβ-2 is expressed in thymus, kidney and pancreas.

REFERENCES

1. D'Arpa, P., et al. 1988. cDNA cloning of human DNA topoisomerase I: catalytic activity of a 67.7 kDa carboxyl-terminal fragment. Proc. Natl. Acad. Sci. USA 85: 2543-2547.
2. Kunze, N., et al. 1991. Structure of the human type I DNA topoisomerase gene. J. Biol. Chem. 266: 9610-9616.
3. Hanai, R., et al. 1996. Human TOP3: a single-copy gene encoding DNA topoisomerase III. Proc. Natl. Acad. Sci. USA 93: 3653-3657.
4. Kawasaki, K., et al. 1997. One-megabase sequence analysis of the human immunoglobulin λ gene locus. Genome Res. 7: 250-261.
5. Ng, S.W., et al. 1999. A new human topoisomerase III that interacts with SGS1 protein. Nucleic Acids Res. 27: 993-1000.
6. Lin, C.W., et al. 2000. Differential expression of human topoisomerase IIIα during the cell cycle progression in HL-60 leukemia cells and human peripheral blood lymphocytes. Exp. Cell Res. 256: 225-236.

CHROMOSOMAL LOCATION

Genetic locus: TOP3A (human) mapping to 17p11.2.

PRODUCT

Topo IIIα 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 Topo IIIα shRNA Plasmid (h): sc-36699-SH and Topo IIIα shRNA (h) Lentiviral Particles: sc-36699-V as alternate gene silencing products.

For independent verification of Topo IIIα (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-36699A, sc-36699B and sc-36699C.

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.

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

Topo IIIα siRNA (h) is recommended for the inhibition of Topo IIIα 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Topo IIIα gene expression knockdown using RT-PCR Primer: Topo IIIα (h)-PR: sc-36699-PR (20 µl, 555 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.