SANTA CRUZ BIOTECHNOLOGY, INC.

Mitochondrial Topo I siRNA (h): sc-77835

BACKGROUND

DNA topoisomerases are nuclear enzymes that regulate the topological structure of DNA in eukaryotic cells by transiently breaking and rejoining DNA strands. Due to their roles in DNA replication, recombination, and transcription, DNA topoisomerases have been identified as targets of numerous anticancer drugs. Mitochondrial Topo I (DNA topoisomerase I, mitochondrial) is a 601 amino acid protein that primarily acts to relieve DNA strain that may occur during duplication of mitochondrial DNA. Although it is expressed ubiquitously, it is logically present at highest levels in tissues that require dense concentrations of mitochondria (ie: heart, skeletal muscle, brain and fetal liver). As a a type IB topoisomerase, mitochondrial Topo I requires a divalent metal, either calcium or magnesium, as well as an alkaline pH for optimal activity.

REFERENCES

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4. Goto, Y., et al. 2006. Acute loss of transcription factor E2F1 induces mitochondrial biogenesis in HeLa cells. J. Cell. Physiol. 209: 923-934.
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CHROMOSOMAL LOCATION

Genetic locus: TOP1MT (human) mapping to 8q24.3.

PRODUCT

Mitochondrial Topo I 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 Mitochondrial Topo I shRNA Plasmid (h): sc-77835-SH and Mitochondrial Topo I shRNA (h) Lentiviral Particles: sc-77835-V as alternate gene silencing products.

For independent verification of Mitochondrial Topo I (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-77835A, sc-77835B and sc-77835C.

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

Mitochondrial Topo I siRNA (h) is recommended for the inhibition of Mitochondrial Topo I 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 Mitochondrial Topo I gene expression knockdown using RT-PCR Primer: Mitochondrial Topo I (h)-PR: sc-77835-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.