SANTA CRUZ BIOTECHNOLOGY, INC.

ENDOGL1 siRNA (h): sc-77953

BACKGROUND

DNA nucleases catalyze the cleavage of phosphodiester bonds. These enzymes play crucial roles in various DNA repair processes, which involve DNA replication, base excision repair, nucleotide excision repair, mismatch repair, and double strand break repair. Endonuclease G (ENDOG), a nuclear encoded protein, localizes to the mitochondrial inner membrane space. This sugar-non-specific nuclease, responsible for major mitochondrial nuclease activity, preferentially cleaves single-stranded DNA (ssDNA). A related protein, ENDOGL1, also designated EXOG or ENGL, exhibits the same mitochondrial location and preference for ssDNA, but differs from ENDOG in substrate specificity. It functions primarily as a homodimer and is ubiquitously expressed. A Japanese population with type two diabetes share a single nucleotide polymorphism in intron five of ENDOGL1, suggesting that it is a candidate disease-susceptibility gene.

REFERENCES

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3. Ikeda, S., et al. 2002. Mitochondrial factors modulate the activity of endonuclease G, the major nuclease of Mammalian mitochondria. J. Biochem. Mol. Biol. Biophys. 1: 17-21.
4. Ohsato, T., et al. 2002. Mammalian mitochondrial endonuclease G. Digestion of R-loops and localization in intermembrane space. Eur. J. Biochem. 23: 5765-5770.
5. Moritani, M., et al. 2007. Genetic association of single nucleotide polymorphisms in endonuclease G-like 1 gene with type 2 diabetes in a Japanese population. Diabetologia 50: 1218-1227.
6. Ahn, C.H., et al. 2008. Decreased expression of endonuclease G (EndoG), a pro-apoptotic protein, in hepatocellular carcinomas. APMIS 116: 534-537.
7. Cymerman, I.A., et al. 2008. EXOG, a novel paralog of Endonuclease G in higher eukaryotes. Nucleic Acids Res. 36: 1369-1379.

CHROMOSOMAL LOCATION

Genetic locus: EXOG (human) mapping to 3p22.2.

PRODUCT

ENDOGL1 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 ENDOGL1 shRNA Plasmid (h): sc-77953-SH and ENDOGL1 shRNA (h) Lentiviral Particles: sc-77953-V as alternate gene silencing products.

For independent verification of ENDOGL1 (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-77953A, sc-77953B and sc-77953C.

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

ENDOGL1 siRNA (h) is recommended for the inhibition of ENDOGL1 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 ENDOGL1 gene expression knockdown using RT-PCR Primer: ENDOGL1 (h)-PR: sc-77953-PR (20 µl, 418 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.

PROTOCOLS

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