SANTA CRUZ BIOTECHNOLOGY, INC.

Selenoprotein K siRNA (m): sc-153326

BACKGROUND

Selenoprotein K (SELK), also known as HSPC030, is a 94 amino acid that belongs to the selenoprotein family which contains the rare 21 amino acid, selenocysteine (sec) that is used in ribosome-mediated protein synthesis. The 3' UTR of selenoprotein genes have a common stem-loop structure known as the sec insertion sequence (SECIS), which is necessary for the recognition of UGA as a sec codon rather than as a stop signal. Unlike the other 20 amino acids in protein, sec is biosynthesized from its tRNA. Widely expressed, Selenoprotein K localizes to endoplasmic reticulum and is found at high levels in heart, where it may function as an antioxidant. Overexpression of Selenoprotein K attenuates intracellular reactive oxygen species level and guards cardiomyocytes from oxidative stress-induced toxicity.

REFERENCES

1. Kryukov, G.V., et al. 2003. Characterization of mammalian selenoproteomes. Science 300: 1439-1443.
2. Online Mendelian Inheritance in Man, OMIM™. 2003. Johns Hopkins University, Baltimore, MD. MIM Number: 607916. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Gromer, S., et al. 2005. Human selenoproteins at a glance. Cell. Mol. Life Sci. 62: 2414-2437.
4. Lu, C., et al. 2006. Identification and characterization of Selenoprotein K: an antioxidant in cardiomyocytes. FEBS Lett. 580: 5189-5197.
5. Papp, L.V., et al. 2007. From selenium to selenoproteins: synthesis, identity, and their role in human health. Antioxid. Redox Signal. 9: 775-806.
6. Grossman, A.R., et al. 2007. Novel metabolism in *Chlamydomonas* through the lens of genomics. Curr. Opin. Plant Biol. 10: 190-198.
7. Lobanov, A.V., et al. 2008. Selenoproteinless animals: selenophosphate synthetase SPS1 functions in a pathway unrelated to selenocysteine biosynthesis. Protein Sci. 17 176-182.
8. SWISS-PROT/TrEMBL (Q9Y6D0). World Wide Web URL: http://www.uniprot.org/uniprot/Q9Y6D0

CHROMOSOMAL LOCATION

Genetic locus: Selk (mouse) mapping to 14 B.

PRODUCT

Selenoprotein K siRNA (m) is a pool of 2 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 Selenoprotein K shRNA Plasmid (m): sc-153326-SH and Selenoprotein K shRNA (m) Lentiviral Particles: sc-153326-V as alternate gene silencing products.

For independent verification of Selenoprotein K (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-153326A and sc-153326B.

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

Selenoprotein K siRNA (m) is recommended for the inhibition of Selenoprotein K 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 Selenoprotein K gene expression knockdown using RT-PCR Primer: Selenoprotein K (m)-PR: sc-153326-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Zhang, Y., et al. 2022. Oxidized high-density lipoprotein promotes CD36 palmitoylation and increases lipid uptake in macrophages. J. Biol. Chem. 298: 102000.

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.