

Selenoprotein V siRNA (h): sc-97401

BACKGROUND

Selenium is an essential trace element that is incorporated as selenocysteine into the primary structure of selenoproteins. Nutritional deficiency of selenium decreases selenoprotein concentrations and leads to pathologic conditions. Most of the known selenoproteins are members of the glutathione peroxidase or iodothyronine deiodinase families. Selenoprotein V, also known as SELV, is a 346 amino acid testis-specific protein that contains a selenocysteine (Sec) residue at its active site and is thought to be involved in redox-related processes throughout the cell. The gene encoding Selenoprotein V maps to human chromosome 19, which is the genetic home for a number of immunoglobulin superfamily members, including the killer cell and leukocyte Ig-like receptors, a number of ICAMs, the CEACAM and PSG family and Fc receptors (Fc Rs).

REFERENCES

1. Kryukov, G.V., et al. 1999. New mammalian selenocysteine-containing proteins identified with an algorithm that searches for selenocysteine insertion sequence elements. *J. Biol. Chem.* 274: 33888-33897.
2. Kryukov, G.V., et al. 2003. Characterization of mammalian selenoproteomes. *Science* 300: 1439-1443.
3. Online Mendelian Inheritance in Man, OMIM™. 2003. Johns Hopkins University, Baltimore, MD. MIM Number: 607919. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
4. Pappas, A.C., et al. 2008. Selenoproteins and maternal nutrition. *Comp. Biochem. Physiol. B, Biochem. Mol. Biol.* 151: 361-372.
5. Steinbrenner, H. and Sies, H. 2009. Protection against reactive oxygen species by selenoproteins. *Biochim. Biophys. Acta* 1790: 1478-1485.
6. Allmang, C., et al. 2009. The selenium to selenoprotein pathway in eukaryotes: more molecular partners than anticipated. *Biochim. Biophys. Acta* 1790: 1415-1423.
7. Hatfield, D.L., et al. 2009. Selenoproteins that function in cancer prevention and promotion. *Biochim. Biophys. Acta* 1790: 1541-1545.
8. Zhuo, P. and Diamond, A.M. 2009. Molecular mechanisms by which selenoproteins affect cancer risk and progression. *Biochim. Biophys. Acta* 1790: 1546-1554.
9. Lescure, A., et al. 2009. Selenoprotein function and muscle disease. *Biochim. Biophys. Acta* 1790: 1569-1574.

CHROMOSOMAL LOCATION

Genetic locus: SELENOV (human) mapping to 19q13.2.

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.

PRODUCT

Selenoprotein V 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Selenoprotein V shRNA Plasmid (h): sc-97401-SH and Selenoprotein V shRNA (h) Lentiviral Particles: sc-97401-V as alternate gene silencing products.

For independent verification of Selenoprotein V (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-97401A, sc-97401B and sc-97401C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

Selenoprotein V siRNA (h) is recommended for the inhibition of Selenoprotein V 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 μ M in 66 μ l. 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 V gene expression knockdown using RT-PCR Primer: Selenoprotein V (h)-PR: sc-97401-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.