SANTA CRUZ BIOTECHNOLOGY, INC.

Selenoprotein S siRNA (m): sc-106542

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 S, also known as VIMP or SELS, is a 189 amino acid single-pass membrane protein that localizes to the endoplasmic reticulum (ER) and contains a selenocysteine (Sec) residue at its active site. Interacting with Derlin-1 and VCP, Selenoprotein S is involved in the degradation of misfolded ER proteins, specifically participating in the transfer of misfolded proteins from the ER to the cytosol for subsequent proteasomal degradation. Aberrant expression of Selenoprotein S is associated with diabetes, cardiovascular disease and rheumatoid arthritis.

REFERENCES

1. Kryukov, G.V., et al. 2003. Characterization of mammalian selenoproteomes. Science 300: 1439-1443.
2. Curran, J.E., et al. 2005. Genetic variation in Selenoprotein S influences inflammatory response. Nat. Genet. 37: 1234-1241.
3. Kim, K.H., et al. 2007. SEPS1 protects RAW264.7 cells from pharmacological ER stress agent-induced apoptosis. Biochem. Biophys. Res. Commun. 354: 127-132.
4. Seiderer, J., et al. 2007. The role of the Selenoprotein S (SELS) gene -105G>A promoter polymorphism in inflammatory bowel disease and regulation of SELS gene expression in intestinal inflammation. Tissue Antigens 70: 238-246.
5. Marinou, I., et al. 2008. Evidence of epistasis between Interleukin-1 and Selenoprotein-S with susceptibility to RA. Ann. Rheum. Dis. 68: 1494-1497.
6. Zeng, J., et al. 2008. Role of SelS in lipopolysaccharide-induced inflammatory response in hepatoma Hep G2 cells. Arch. Biochem. Biophys. 478: 1-6.
7. Martínez, A., et al. 2008. Polymorphisms in the Selenoprotein S gene: lack of association with autoimmune inflammatory diseases. BMC Genomics 9: 329.

CHROMOSOMAL LOCATION

Genetic locus: Vimp (mouse) mapping to 7 C.

PRODUCT

Selenoprotein S siRNA (m) 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 Selenoprotein S shRNA Plasmid (m): sc-106542-SH and Selenoprotein S shRNA (m) Lentiviral Particles: sc-106542-V as alternate gene silencing products.

For independent verification of Selenoprotein S (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-106542A, sc-106542B and sc-106542C.

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 S siRNA (m) is recommended for the inhibition of Selenoprotein S 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.

GENE EXPRESSION MONITORING

Selenoprotein S (D-1): sc-365498 is recommended as a control antibody for monitoring of Selenoprotein S gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Selenoprotein S gene expression knockdown using RT-PCR Primer: Selenoprotein S (m)-PR: sc-106542-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.