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### SZABO-SCANDIC HandelsgmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

[mail@szabo-scandic.com](mailto:mail@szabo-scandic.com)

[www.szabo-scandic.com](http://www.szabo-scandic.com)

[linkedin.com/company/szaboscandic](https://www.linkedin.com/company/szaboscandic) 

# Selenoprotein M siRNA (m): sc-153327

## 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 M, also designated SELM or SEPM, is a 145 amino acid protein suggested to act as a thiol-disulfide oxidoreductase during disulfide bond formation that contains a selenocysteine (Sec) residue at its active site. Widely expressed, Selenoprotein M is a member of the selenoprotein M/SEP15 family and localizes to perinuclear structures of the endoplasmic reticulum and Golgi apparatus. Selenoprotein M is highly expressed in brain, with moderate to low levels found in uterus, kidney, placenta, lung, stomach, heart, skin, testis and small intestine. Selenoprotein M may have a functional role in catalyzing free radicals, and has been associated with Alzheimer's disease.

## 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. Korotkov, K.V., et al. 2002. Mammalian selenoprotein in which selenocysteine (Sec) incorporation is supported by a new form of Sec insertion sequence element. *Mol. Cell. Biol.* 22: 1402-1411.
3. Driscoll, D.M. and Copeland, P.R. 2003. Mechanism and regulation of selenoprotein synthesis. *Annu. Rev. Nutr.* 23: 17-40.
4. Kryukov, G.V., et al. 2003. Characterization of mammalian selenoproteomes. *Science* 300: 1439-1443.
5. Hwang, D.Y., et al. 2005. Differentially expressed genes in transgenic mice carrying human mutant presenilin-2 (N141I): correlation of selenoprotein M with Alzheimer's disease. *Neurochem. Res.* 30: 1009-1019.
6. Boitani, C. and Puglisi, R. 2008. Selenium, a key element in spermatogenesis and male fertility. *Adv. Exp. Med. Biol.* 636: 65-73.
7. Carlson, B.A., et al. 2009. Selenoproteins regulate macrophage invasiveness and extracellular matrix-related gene expression. *BMC Immunol.* 10: 57.

## CHROMOSOMAL LOCATION

Genetic locus: Selm (mouse) mapping to 11 A1.

## PRODUCT

Selenoprotein M 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Selenoprotein M shRNA Plasmid (m): sc-153327-SH and Selenoprotein M shRNA (m) Lentiviral Particles: sc-153327-V as alternate gene silencing products.

For independent verification of Selenoprotein M (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-153327A and sc-153327B.

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

## APPLICATIONS

Selenoprotein M siRNA (m) is recommended for the inhibition of Selenoprotein M 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  $\mu$ M in 66  $\mu$ 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.

## GENE EXPRESSION MONITORING

Selenoprotein M (C-3): sc-514952 is recommended as a control antibody for monitoring of Selenoprotein M 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-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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 M gene expression knockdown using RT-PCR Primer: Selenoprotein M (m)-PR: sc-153327-PR (20  $\mu$ l). 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](http://www.scbt.com) for detailed protocols and support products.