

# Selenoprotein R (QA-V7): sc-135558

## 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 P (SEPP1) is a major selenoprotein that is not a member of those families. It is an extracellular glycoprotein that is present in several isoforms and is the only selenoprotein known to contain multiple selenocysteine residues. SECIS elements form stem-loop structures in the 3' untranslated regions (UTR) of eukaryotic mRNAs that encode selenoproteins. The Selenoprotein W SECIS elements contain an additional highly conserved base-paired stem that may prevent inappropriate selenocysteine incorporation at the UGA stop codons. Selenoprotein R, also designated methionine-R-sulfoxide reductase or Selenoprotein X1, is a zinc binding protein. The gene encoding for Selenoprotein R contains selenocysteine, which is encoded by the usual stop codon TGA at the active site. Selenoprotein R may play a role in protection against oxidative stress.

## REFERENCES

- Hill, K.E., et al. 1993. Conserved nucleotide sequences in the open reading frame and 3' untranslated region of Selenoprotein P mRNA. *Proc. Natl. Acad. Sci. USA* 90: 537-541.
- Chittum, H.S., et al. 1996. Multiple forms of Selenoprotein P in rat plasma. *Arch. Biochem. Biophys.* 325: 124-128.
- Hill, K.E., et al. 1996. Human Selenoprotein P gene maps to 5q31. *Genomics* 36: 550-551.
- 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.
- Kryukov, G.V., et al. 2002. Selenoprotein R is a zinc-containing stereo-specific methionine sulfoxide reductase. *Proc. Natl. Acad. Sci. USA* 99: 4245-4250.
- Gromer, S., et al. 2005. Human selenoproteins at a glance. *Cell. Mol. Life Sci.* 62: 2414-2437.

## CHROMOSOMAL LOCATION

Genetic locus: SEPP1 (human) mapping to 16p13.3.

## SOURCE

Selenoprotein R (QA-V7) is a mouse monoclonal antibody raised against recombinant Selenoprotein R protein of human origin.

## PRODUCT

Each vial contains 100 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## APPLICATIONS

Selenoprotein R (QA-V7) is recommended for detection of Selenoprotein R of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Selenoprotein R siRNA (h): sc-45574, Selenoprotein R shRNA Plasmid (h): sc-45574-SH and Selenoprotein R shRNA (h) Lentiviral Particles: sc-45574-V.

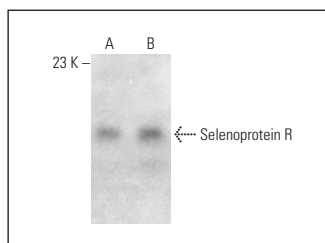
Molecular Weight of Selenoprotein R: 12 kDa.

Positive Controls: A-375 cell lysate: sc-3811, MOLT-4 cell lysate: sc-2233 or human Selenoprotein R transfected 293T whole cell lysate.

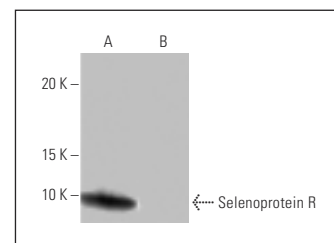
## RECOMMENDED SUPPORT REAGENTS

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

## DATA



Selenoprotein R (QA-V7): sc-135558. Western blot analysis of Selenoprotein R expression in MOLT-4 (A) and A-375 (B) whole cell lysates.



Selenoprotein R (QA-V7): sc-135558. Western blot analysis of Selenoprotein R expression in human Selenoprotein R transfected (A) and non-transfected (B) 293T whole cell lysates.

## SELECT PRODUCT CITATIONS

- Chen, X.Y., et al. 2021. MsrB1 promotes proliferation and invasion of colorectal cancer cells via GSK-3β/β-catenin signaling axis. *Cell Transplant.* 30: 9636897211053203.

## 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.