



SZABO SCANDIC

Part of Europa Biosite

Produktinformation



Forschungsprodukte & Biochemikalien



Zellkultur & Verbrauchsmaterial



Diagnostik & molekulare Diagnostik



Laborgeräte & Service

Weitere Information auf den folgenden Seiten!
See the following pages for more information!



Lieferung & Zahlungsart

siehe unsere [Liefer- und Versandbedingungen](#)

Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

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

www.szabo-scandic.com

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

γ -GCSc siRNA (h): sc-41978

BACKGROUND

The GCLC gene consists of 16 exons and encodes the 636 amino acid protein γ -GCSc (γ -glutamylcysteine synthetase heavy subunit), also designated γ -L-glutamate-L-cysteine ligase catalytic subunit (GLCLC). γ -GCSc is expressed in hemocytes, brain, liver and kidney. γ -GCSc associates with a regulatory or modifier subunit, γ -GCSm (γ -glutamylcysteine synthetase light subunit), to form a heterodimer, γ -GCS. γ -GCS is the first enzyme involved and the rate determining step in glutathione biosynthesis. Oxidants, cadmium and methyl mercury upregulate the transcription of γ -GCS. H_2O_2 regulation depends on the Yap1 protein and the presence of glutamate, glutamine and lysine. Cadmium regulates transcription through proteins Met-4, Met-31 and Met-32. Cbf1, a DNA binding protein, inhibits transcription of γ -GCS. Chemopreventive compounds cause increased levels of γ -GCSc in kidney tissues, which may protect against chemically-induced carcinogenesis. A His370Leu amino acid change in γ -GCSc causes deficiencies in activity, which are responsible for hemolytic anemia and low red blood cell glutathione levels.

REFERENCES

- Lunn, G., et al. 1979. Transport accounts for glutathione turnover in human erythrocytes. *Blood* 54: 238-244.
- Sierra-Rivera, E., et al. 1995. Assignment of the gene (GLCLC) that encodes the heavy subunit of γ -glutamylcysteine synthetase to human chromosome 6. *Cytogenet. Cell Genet.* 70: 278-279.
- Walsh, A.C., et al. 1996. Genetic mapping of GLCLC, the human gene encoding the catalytic subunit of γ -glutamylcysteine synthetase, to chromosome band 6p12 and characterization of a polymorphic trinucleotide repeat within its 5' untranslated region. *Cytogenet. Cell Genet.* 75: 14-16.

CHROMOSOMAL LOCATION

Genetic locus: GCLC (human) mapping to 6p12.1.

PRODUCT

γ -GCSc 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 γ -GCSc shRNA Plasmid (h): sc-41978-SH and γ -GCSc shRNA (h) Lentiviral Particles: sc-41978-V as alternate gene silencing products.

For independent verification of γ -GCSc (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-41978A, sc-41978B and sc-41978C.

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

γ -GCSc siRNA (h) is recommended for the inhibition of γ -GCSc 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.

GENE EXPRESSION MONITORING

γ -GCSc (H-5): sc-390811 is recommended as a control antibody for monitoring of γ -GCSc 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 κ BP-HRP: sc-516102 or m-IgG κ 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 κ BP-FITC: sc-516140 or m-IgG κ 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 γ -GCSc gene expression knockdown using RT-PCR Primer: γ -GCSc (h)-PR: sc-41978-PR (20 μ l). Annealing temperature for the primers should be $55-60^\circ$ C and the extension temperature should be $68-72^\circ$ C.

SELECT PRODUCT CITATIONS

- Parsanathan, R. and Jain, S.K. 2018. L-cysteine *in vitro* can restore cellular glutathione and inhibits the expression of cell adhesion molecules in G6PD-deficient monocytes. *Amino Acids* 50: 909-921.
- Parsanathan, R. and Jain, S.K. 2019. Glutathione deficiency alters the vitamin D-metabolizing enzymes CYP27B1 and CYP24A1 in human renal proximal tubule epithelial cells and kidney of HFD-fed mice. *Free Radic. Biol. Med.* 131: 376-381.

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.