

γ -GCSc (C-15): sc-22667

BACKGROUND

The GLCLC 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 -GCScm (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.
- 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 -glutamyl-cysteine synthetase, to chromosome band 6p12 and characterization of a polymorphic trinucleotide repeat within its 5-prime untranslated region. *Cytogenet. Cell Genet.* 75: 14-16.
- Stephen, D.W., et al. 1997. Amino acid-dependent regulation of the *Saccharomyces cerevisiae* GSH1 gene by hydrogen peroxide. *Mol. Microbiol.* 23: 203-210.

CHROMOSOMAL LOCATION

Genetic locus: GLCLC (human) mapping to 6p12.1; Gclc (mouse) mapping to 9 E1.

SOURCE

γ -GCSc (C-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of γ -GCSc of human origin.

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-22667 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

γ -GCSc (C-15) is recommended for detection of γ -GCSc of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

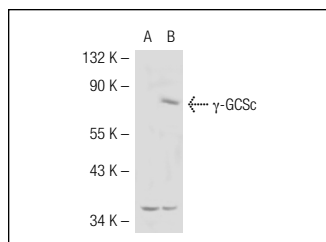
γ -GCSc (C-15) is also recommended for detection of γ -GCSc in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for γ -GCSc siRNA (h): sc-41978, γ -GCSc siRNA (m): sc-41979, γ -GCSc shRNA Plasmid (h): sc-41978-SH, γ -GCSc shRNA Plasmid (m): sc-41979-SH, γ -GCSc shRNA (h) Lentiviral Particles: sc-41978-V and γ -GCSc shRNA (m) Lentiviral Particles: sc-41979-V.

Molecular Weight of γ -GCSc: 73 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, γ -GCSc (m): 293T Lysate: sc-120458 or A549 cell lysate: sc-2413.

DATA



γ -GCSc (C-15): sc-22667. Western blot analysis of γ -GCSc expression in non-transfected: sc-117752 (A) and mouse γ -GCSc transfected: sc-120458 (B) 293T whole cell lysates.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.

MONOS
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Try **γ -GCSc (H-5): sc-390811** or **γ -GCSc (F-9): sc-166356**, our highly recommended monoclonal alternatives to γ -GCSc (C-15).