**BACKGROUND**

The GCLC gene consists of 16 exons and encodes the 636 amino acid protein γ-GCS (γ-glutamylcysteine synthetase heavy subunit), also designated γ-L-glutamate-L-cysteine ligase catalytic subunit (GLCLC). γ-GCS is expressed in hemocytes, brain, liver and kidney; γ-GCS associates with a regulatory or modifier subunit, γ-GCSm (γ-glutamylcysteine synthetase light subunit), to form a heterodimer. γ-GCS, γ-GCSm is the first enzyme involved and the rate determining step in glutathione biosynthesis. Oxidants, cadmium and methyl mercury upregulate the transcription of γ-GCS. H2O2 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-GCS in kidney tissues, which may protect against chemically-induced carcinogenesis. A His370Leu amino acid change in γ-GCS causes deficiencies in activity, which are responsible for hemolytic anemia and low red blood cell glutathione levels.

**REFERENCES**


**CHROMOSOMAL LOCATION**

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

**SOURCE**

γ-GCSc (D-4) is a mouse monoclonal antibody raised against amino acids 338-637 mapping at the C-terminus of γ-GCSc of human origin.

**PRODUCT**

Each vial contains 200 µg IgG kappa light chain in 1.0 ml of PBS with <0.1% sodium azide and 0.1% gelatin.

**APPLICATIONS**

γ-GCSc (D-4) is recommended for detection of γ-GCSc of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation (1:2 µg per 100-500 µg 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). 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.

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.

**DATA**

γ-GCSc (D-4): sc-166382. Western blot analysis of γ-GCSc expression in RPMI2650 whole cell lysate.

**SELECT PRODUCT CITATIONS**

2. Akaboshi, T. and Yamanishi, R. 2014. Certain carotenoids enhance the 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.

**RESEARCH USE**

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

**STORAGE**

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