SANTA CRUZ BIOTECHNOLOGY, INC.

γ-GCSc (F-9): sc-166356

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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, cadium 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. Cadium 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

1. Lunn, G., et al. 1979. Transport accounts for glutathione turnover in human erythrocytes. Blood 54: 238.
2. 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.

CHROMOSOMAL LOCATION

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

SOURCE

γ-GCSc (F-9) 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_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

γ-GCSc (F-9) is available conjugated to agarose (sc-166356 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-166356 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166356 PE), fluorescein (sc-166356 FITC), Alexa Fluor® 488 (sc-166356 AF488), Alexa Fluor® 546 (sc-166356 AF546), Alexa Fluor® 594 (sc-166356 AF594) or Alexa Fluor® 647 (sc-166356 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166356 AF680) or Alexa Fluor® 790 (sc-166356 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

RESEARCH USE

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

APPLICATIONS

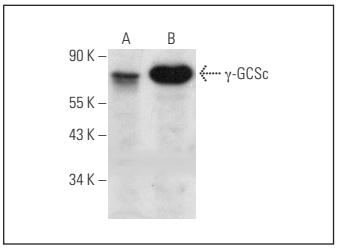
γ-GCSc (F-9) is recommended for detection of γ-GCSc of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (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.

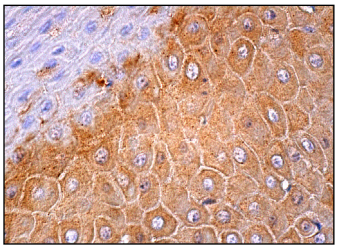
Molecular Weight of γ-GCSc: 73 kDa.

Positive Controls: AMJ2-C8 whole cell lysate: sc-364366, c4 whole cell lysate: sc-364186 or A549 cell lysate: sc-2413.

DATA



γ-GCSc (F-9): sc-166356. Western blot analysis of γ-GCSc expression in c4 (**A**) and AMJ2-C8 (**B**) whole cell lysates.



γ-GCSc (F-9): sc-166356. Immunoperoxidase staining of formalin fixed, paraffin-embedded human oral mucosa tissue showing cytoplasmic staining of squamous epithelial cells.

SELECT PRODUCT CITATIONS

1. Lee, H.M., et al. 2014. Defensive mechanism in cholangiocarcinoma cells against oxidative stress induced by chlorin e6-based photodynamic therapy. Drug Des. Devel. Ther. 8: 1451-1462.
2. Rosales-Cruz, P., et al. 2018. Cadmium exposure exacerbates hyperlipidemia in cholesterol-overloaded hepatocytes via autophagy dysregulation. Toxicology 398-399: 41-51.

PROTOCOLS

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