SANTA CRUZ BIOTECHNOLOGY, INC.

γ-GCSc (H-5): sc-390811



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. H₂O₂ 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.

CHROMOSOMAL LOCATION

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

SOURCE

 $\gamma\text{-GCSc}$ (H-5) is a mouse monoclonal antibody raised against amino acids 338-637 of $\gamma\text{-GCSc}$ of human origin.

PRODUCT

Each vial contains 200 μg lgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

 γ -GCSc (H-5) is available conjugated to agarose (sc-390811 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-390811 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-390811 PE), fluorescein (sc-390811 FITC), Alexa Fluor[®] 488 (sc-390811 AF488), Alexa Fluor[®] 546 (sc-390811 AF546), Alexa Fluor[®] 594 (sc-390811 AF594) or Alexa Fluor[®] 647 (sc-390811 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-390811 AF680) or Alexa Fluor[®] 790 (sc-390811 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

 γ -GCSc (H-5) 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 y-GCSc: 73 kDa.

Positive Controls: c4 whole cell lysate: sc-364186 or A549 cell lysate: sc-2413.

STORAGE

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

DATA





 $\gamma\text{-GCSc}$ (H-5) HRP: sc-390811 HRP. Direct western blot analysis of $\gamma\text{-GCSc}$ expression in AMJ2-C8 (A), A-431 (B), A549 (C) and c4 (D) whole cell lysates.

y-GCSc (H-5): sc-390811. Immunoperoxidase staining of formalin fixed, paraffin-embedded human duodenum (**A**) and human fallopian tube (**B**) tissue showing cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

- Wandee, J., et al. 2018. Metformin sensitizes cholangiocarcinoma cell to cisplatin-induced cytotoxicity through oxidative stress mediated mitochondrial pathway. Life Sci. 217: 155-163.
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- Cao, J., et al. 2020. DJ-1 suppresses ferroptosis through preserving the activity of S-adenosyl homocysteine hydrolase. Nat. Commun. 11: 1251.
- D'Amico, R., et al. 2021. *Hericium erinaceus* and *Coriolus versicolor* modulate molecular and biochemical changes after traumatic brain injury. Antioxidants 10: 898.
- 5. Forcina, G.C., et al. 2022. Ferroptosis regulation by the NGLY1/NFE2L1 pathway. Proc. Natl. Acad. Sci. USA 119: e2118646119.
- Franchina, D.G., et al. 2022. Glutathione-dependent redox balance characterizes the distinct metabolic properties of follicular and marginal zone B cells. Nat. Commun. 13: 1789.
- Liu, Y.D., et al. 2022. N,N-dimethylformamide inhibits high glucose-induced osteoporosis via attenuating MAPK and NFκB signalling. Bone Joint Res. 11: 200-209.
- Chen, Y., et al. 2022. tert-Butylhydroquinone-induced formation of highmolecular-weight p62: a novel mechanism in the activation of Nrf2-Keap1. Cell Biol. Int. 46: 1345-1354.
- Pontel, L.B., et al. 2022. Acute lymphoblastic leukemia necessitates GSHdependent ferroptosis defenses to overcome FSP1-epigenetic silencing. Redox Biol. 55: 102408.

RESEARCH USE

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

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