SANTA CRUZ BIOTECHNOLOGY, INC.

γ-GCSc (H-5): sc-390811

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.

CHROMOSOMAL LOCATION

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

SOURCE

γ-GCSc (H-5) is a mouse monoclonal antibody raised against amino acids 338-637 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 (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.

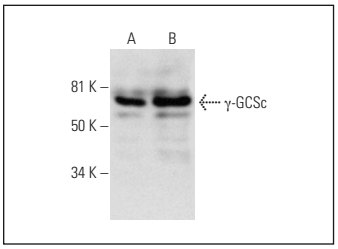
Molecular Weight of γ-GCSc: 73 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227 or A549 cell lysate: sc-2413.

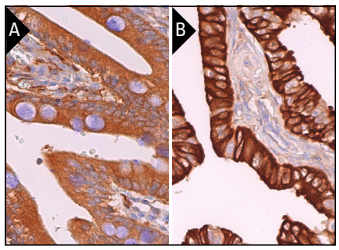
STORAGE

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

DATA



γ-GCSc (H-5): sc-390811. Western blot analysis of γ-GCSc expression in Hep G2 (**A**) and A549 (**B**) whole cell lysates.



γ-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

1. Wandee, J., et al. 2018. Metformin sensitizes cholangiocarcinoma cell to cisplatin-induced cytotoxicity through oxidative stress mediated mitochondrial pathway. Life Sci. 217: 155-163.
2. Cheng, D., et al. 2019. *Moringa* isothiocyanate activates Nrf2: potential role in diabetic nephropathy. AAPS J. 21: 31.
3. Sathyamoorthy, Y., et al. 2019. Glycyrrhizic acid renders robust neuroprotection in rodent model of vascular dementia by controlling oxidative stress and curtailing cytochrome-c release. Nutr. Neurosci. 22: 1-16.
4. Kaufmann, U., et al. 2019. Calcium signaling controls pathogenic Th17 cell-mediated inflammation by regulating mitochondrial function. Cell Metab. 29: 1104-1118.
5. Harris, I.S., et al. 2019. Deubiquitinases maintain protein homeostasis and survival of cancer cells upon glutathione depletion. Cell Metab. 29: 1166-1181.
6. Tocmo, R. and Parkin, K. 2019. S-1-propenylmercaptocysteine protects murine hepatocytes against oxidative stress via persulfidation of Keap1 and activation of Nrf2. Free Radic. Biol. Med. 143: 164-175.
7. Takashima, M., et al. 2019. Neuroprotective effects of Brazilian green propolis on oxytosis/ferroptosis in mouse hippocampal HT22 cells. Food Chem. Toxicol. 132: 110669.
8. Cao, J., et al. 2020. DJ-1 suppresses ferroptosis through preserving the activity of S-adenosyl homocysteine hydrolase. Nat. Commun. 11: 1251.
9. Chen, K., et al. 2020. Steroid-induced osteonecrosis of the femoral head reveals enhanced reactive oxygen species and hyperactive osteoclasts. Int. J. Biol. Sci. 16: 1888-1900.

RESEARCH USE

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