

γ -GCSc (H-338): sc-22755

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 -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 His 370 Leu 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-338) is a rabbit polyclonal antibody raised against amino acids 338-637 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.

APPLICATIONS

γ -GCSc (H-338) 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), 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).

γ -GCSc (H-338) is also recommended for detection of γ -GCSc in additional species, including equine, canine, bovine and porcine.

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: γ -GCSc (h): 293T Lysate: sc-115522, A549 cell lysate: sc-2413 or Hep G2 cell lysate: sc-2227.

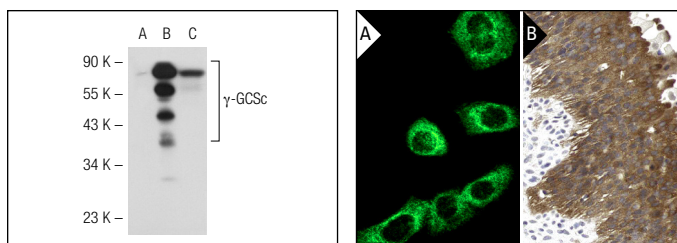
STORAGE

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.

DATA



γ -GCSc (H-338): sc-22755. Western blot analysis of γ -GCSc expression in non-transfected 293T: sc-117752 (A), human γ -GCSc transfected 293T: sc-115522 (B) and Hep G2 (C) whole cell lysates.

γ -GCSc (H-338): sc-22755. Immunofluorescence staining of methanol-fixed A549 cells showing cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human urinary bladder tissue showing cytoplasmic staining of surface epithelial cells magnification. Kindly provided by The Swedish Human Protein Atlas (HPA) program (B).

SELECT PRODUCT CITATIONS

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- Akai, S., et al. 2007. Knock down of γ -glutamylcysteine synthetase in rat causes acetaminophen-induced hepatotoxicity. *J. Biol. Chem.* 282: 23996-24003.
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- Godoy, J.R., et al. 2011. Redox atlas of the mouse. Immunohistochemical detection of glutaredoxin-, peroxiredoxin-, and thioredoxin-family proteins in various tissues of the laboratory mouse. *Biochim. Biophys. Acta* 1810: 2-92.
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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 (H-338).