

# $\gamma$ -GCSm (T-16): sc-22663

## BACKGROUND

Gamma-glutamylcysteine synthetase ( $\gamma$ -GCS) is the rate limiting enzyme for glutathione (L- $\gamma$ -glutamyl-L-cysteinylglycine, GSH) synthesis. GSH is ubiquitous in mammalian cells as a vital intra- and extracellular protective antioxidant.  $\gamma$ -GCS is a heterodimer of a heavy catalytic subunit and a light regulatory subunit that is responsive to inflammation, phenolic antioxidants, heat shock, oxidants and cytokines. The human  $\gamma$ -GCS gene encoding the 367 amino acid catalytic subunit maps to chromosome 6p12. The human  $\gamma$ -GCS gene encoding the regulatory subunit maps to chromosome 1p22-p21. The two subunits of  $\gamma$ -GCS form a heterodimeric zinc metalloprotein that gains activity through formation of a reversible disulfide bond.

## REFERENCES

- Sierra-Rivera, E., et al. 1995. Assignment of the gene (GLCLC) that encodes the heavy subunit of gamma-glutamylcysteine synthetase to human chromosome 6. *Cytogenet. Cell Genet.* 70: 278-279.
- Anderson, M.E. 1998. Glutathione: an overview of biosynthesis and modulation. *Chem. Biol. Interact.* 111-112: 1-14.
- Kondo, T., et al. 1999. Regulation of gamma-glutamylcysteine synthetase expression in response to oxidative stress. *Free Radic. Res.* 31: 325-334.
- Rahman, I. 1999. Inflammation and the regulation of glutathione level in lung epithelial cells. *Antioxid. Redox Signal.* 1: 425-447.
- Rahman, I. and MacNee, W. 2000. Regulation of redox glutathione levels and gene transcription in lung inflammation: therapeutic approaches. *Free Radic. Biol. Med.* 28: 1405-1420.
- Soltaninassab, S.R., et al. 2000. Multi-faceted regulation of  $\gamma$ -glutamylcysteine synthetase. *J. Cell. Physiol.* 182: 163-170.

## CHROMOSOMAL LOCATION

Genetic locus: GCLM (human) mapping to 1p22.1; Gclm (mouse) mapping to 3 G1.

## SOURCE

$\gamma$ -GCSm (T-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of  $\gamma$ -GCSm of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-22663 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## 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

$\gamma$ -GCSm (T-16) is recommended for detection of  $\gamma$ -GCSm of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

$\gamma$ -GCSm (T-16) is also recommended for detection of  $\gamma$ -GCSm in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for  $\gamma$ -GCSm siRNA (h): sc-40602,  $\gamma$ -GCSm siRNA (m): sc-40603,  $\gamma$ -GCSm shRNA Plasmid (h): sc-40602-SH,  $\gamma$ -GCSm shRNA Plasmid (m): sc-40603-SH,  $\gamma$ -GCSm shRNA (h) Lentiviral Particles: sc-40602-V and  $\gamma$ -GCSm shRNA (m) Lentiviral Particles: sc-40603-V.

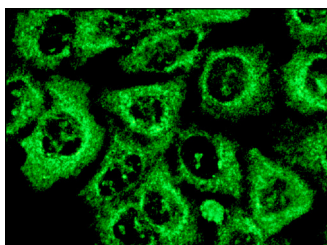
Molecular Weight of  $\gamma$ -GCSm: 31 kDa.

Positive Controls: A549 cell lysate: sc-2413, MOLT-4 cell lysate: sc-2233 or K-562 whole cell lysate: sc-2203.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## DATA



$\gamma$ -GCSm (T-16): sc-22663. Immunofluorescence staining of methanol-fixed A549 cells showing cytoplasmic localization.

## SELECT PRODUCT CITATIONS

- Maier, P., et al. 2011. Fisetin lowers methylglyoxal dependent protein glycation and limits the complications of diabetes. *PLoS ONE* 6: e21226.

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Try  $\gamma$ -GCSm (E-4): sc-55586 or  $\gamma$ -GCSm (F-8): sc-166603, our highly recommended monoclonal alternatives to  $\gamma$ -GCSm (T-16).