SANTA CRUZ BIOTECHNOLOGY, INC.

GSS (E-20): sc-15090

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

GSS (glutathione synthetase) is a 474 amino acid protein encoded by the gene located at chromosome 20q11.22. GSS consists of three loops projecting from an antiparallel β-sheet, a parallel β-sheet, and a lid of anti-parallel sheets, which provide access to the ATP-binding site. Although southern blot and gene analysis suggest that GSS may be the only member of a unique family, the crystal structure indicates that GSS belongs to the ATP-grasp superfamily. GSS is expressed in hemocytes and nucleated cells including the brain. GSS occurs as a homodimer. There are two steps in the production of Glutathione, begining with γ-GCS and ending with GSS. In an ATP-dependent reaction, GSS produces Glutathione from γ-glutamylcysteine and glycine precursors. Partial hepatectomy, diethyl maleate, buthionine sulfoximine, tert-butylhaydroquinone, and thioacetamide increase the expression of GSS, which causes an increase in glutathione levels. 5-oxoprolinuria (pyroglutamic aciduria), an inherited autosomal recessive disorder, is caused by GSS deficiencies, which leads to central nervous system damage, haemolytic anaemia, metabolic acidosis and urinary excretion of 5-oxoproline. A missense mutation in the gene encoding GSS leads to a GSS deficiency restricted to erythrocytes, which causes only haemolytic anaemia.

REFERENCES

1. Webb, G.C., et al. 1995. The gene encoding human Glutathione synthetase (GSS) maps to the long arm of chromosome 20 at band 11.2. Genomics 30: 617-619.
2. Gali, R.R., et al. 1995. Sequencing and expression of a cDNA for human Glutathione synthetase. Biochem. J. 310: 353-358
3. Shi, Z.Z., et al. 1996. Mutations in the glutathione synthetase gene cause 5-oxoprolinuria. Nat. Genet. 14: 361-365.
4. Polekhina, G., et al. 1999. Molecular basis of Glutathione synthetase deficiency and a rare gene permutation event. EMBO J.18: 3204-3213.
5. Huang, Z.A., et al. 2000. Inducers of γ-glutamylcysteine synthetase and their effects on Glutathione synthetase expression. Biochim. Biophys. Acta 1493: 48-55.

CHROMOSOMAL LOCATION

Genetic locus: GSS (human) mapping to 20q11.22; Gss (mouse) mapping to 2 H1.

SOURCE

GSS (E-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of GSS of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-15090 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

GSS (E-20) is recommended for detection of GSS of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

GSS (E-20) is also recommended for detection of GSS in additional species, including equine, canine and porcine.

Suitable for use as control antibody for GSS siRNA (h): sc-41980, GSS siRNA (m): sc-41981, GSS shRNA Plasmid (h): sc-41980-SH, GSS shRNA Plasmid (m): sc-41981-SH, GSS shRNA (h) Lentiviral Particles: sc-41980-V and GSS shRNA (m) Lentiviral Particles: sc-41981-V.

Molecular Weight of GSS: 52 kDa.

Positive Controls: SW480 cell lysate: sc-2219, HeLa whole cell lysate: sc-2200 or NIH/3T3 whole cell lysate: sc-2210.

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

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.

PROTOCOLS

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