SANTA CRUZ BIOTECHNOLOGY, INC.

GSTA1 (R-14): sc-100546

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Members of the glutathione S-transferase (GST) family of proteins function in the detoxification of xenobiotics to protect cells against toxicant-induced damage. GSTs are differentially expressed in lung, liver and kidney tissue. Three isoforms, GSTA1-1, GSTA1-4 and GSTM1, localize to the mitochondria in addition to the cytoplasm. In normal and transformed cells, the oncoprotein Myb transcriptionally upregulates GSTM1. This isoform shows high specific activity for aflatoxin B1 epoxide conjugation, suggesting an important role for this interaction in the defense against both chemical and oxidative stress. The C-terminal domain of GSTA1 may form a component of the hydrophobic substrate-binding site, but in contrast appears not to be directly involved in GSH binding and is not absolutely essential for catalytic activity.

REFERENCES

1. Board, P.G. and Mannervik, B. 1991. The contribution of the C-terminal sequence to the catalytic activity of GST2, a human α-class glutathione transferase. Biochem. J. 275: 171-174.
2. Sinning, I., et al. 1993. Structure determination and refinement of human α-class glutathione transferase A1-1, and a comparison with the μ and π class enzymes. J. Mol. Biol. 232: 192-212.
3. Cameron, A.D., et al. 1995. Structural analysis of human α-class glutathione transferase A1-1 in the apo-form and in complexes with ethacrynic acid and its glutathione conjugate. Structure 3: 717-727.

CHROMOSOMAL LOCATION

Genetic locus: GSTA1 (human) mapping to 6p12.2.

SOURCE

GSTA1 (R-14) is a mouse monoclonal antibody raised against recombinant GSTA1 of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

GSTA1 (R-14) is recommended for detection of GSTA1 of 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), 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 GSTA1 siRNA (h): sc-105421, GSTA1 shRNA Plasmid (h): sc-105421-SH and GSTA1 shRNA (h) Lentiviral Particles: sc-105421-V.

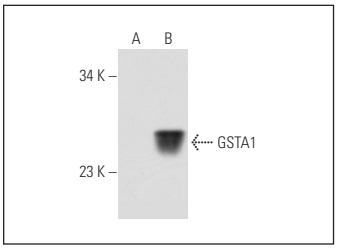
Molecular Weight of GSTA1: 26 kDa.

Positive Controls: GSTA1 (h): 293T Lysate: sc-112062.

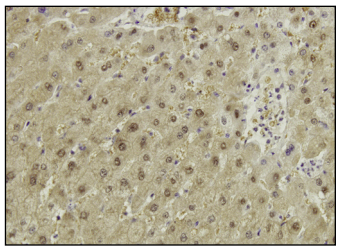
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 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 m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



GSTA1 (R-14): sc-100546. Western blot analysis of GSTA1 expression in non-transfected: sc-117752 (**A**) and human GSTA1 transfected: sc-112062 (**B**) 293T whole cell lysates.



GSTA1 (R-14): sc-100546. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human liver tissue showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Krajka-Kuzniak, V., et al. 2013. Xanthohumol induces phase II enzymes via Nrf2 in human hepatocytes *in vitro*. Toxicol. In Vitro 27: 149-156.
2. Ulvestad, M., et al. 2013. Drug metabolizing enzyme and transporter protein profiles of hepatocytes derived from human embryonic and induced pluripotent stem cells. Biochem. Pharmacol. 86: 691-702.
3. Wang, W., et al. 2017. Glutathione S-transferase A1 mediates nicotine-induced lung cancer cell metastasis by promoting epithelial-mesenchymal transition. Exp. Ther. Med. 14: 1783-1788.
4. Zhang, Q., et al. 2017. Ethanol extract and its dichloromethane fraction of *Alpinia oxyphylla* Miquel exhibited hepatoprotective effects against CCl_4-induced oxidative damage *in vitro* and *in vivo* with the involvement of Nrf2. Biomed. Pharmacother. 91: 812-822.
5. Hauck, L., et al. 2017. Cardiac-specific ablation of the E3 ubiquitin ligase Mdm2 leads to oxidative stress, broad mitochondrial deficiency and early death. PLoS ONE 12: e0189861.

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.