

GSTA1 (h): 293T Lysate: sc-112062

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., Kleywegt, G.J., Cowan, S.W., Reinemer, P., Dirr, H.W., Huber, R., Gilliland, G.L., Armstrong, R.N., Ji, X., Board, P.G., 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., Sinning, I., L'Hermite, G., Olin, B., Board, P.G., Mannervik, B. and Jones, T.A. 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.
4. McGuire, S., Daggett, D.A., Bostad, E., Nelson, S., Wright, L.S., Siegel, F.L. and Kornguth, S. 1997. Increased levels of glutathione S-transferases and appearance of novel α -class isoenzymes in kidneys of mice exposed to mercuric chloride. I. Biochemical and immunohistochemical studies. *Nephron* 77: 452-460.
5. Massey, T.E., Smith, G.B. and Tam, A.S. 2000. Mechanisms of aflatoxin B1 lung tumorigenesis. *Exp. Lung Res.* 26: 673-683.
6. Raza, H., Robin, M.A., Fang, J.K., Avadhani, N.G. 2002. Multiple isoforms of mitochondrial glutathione S-transferases and their differential induction under oxidative stress. *Biochem. J.* 366: 45-55.
7. Bartley, P.A., Keough, R.A., Lutwyche, J.K. and Gonda T.J. 2003. Regulation of the gene encoding glutathione S-transferase M1 (GSTM1) by the Myb oncoprotein. *Oncogene* 22: 7570-7575.

CHROMOSOMAL LOCATION

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

PRODUCT

GSTA1 (h): 293T Lysate represents a lysate of human GSTA1 transfected 293T cells and is provided as 100 μ g protein in 200 μ l SDS-PAGE buffer.

RESEARCH USE

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

APPLICATIONS

GSTA1 (h): 293T Lysate is suitable as a Western Blotting positive control for human reactive GSTA1 antibodies. Recommended use: 10-20 μ l per lane.

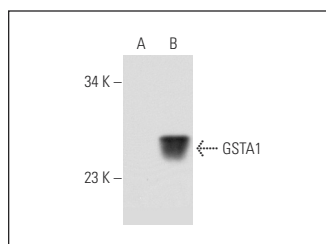
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

GSTA1 (R-14): sc-100546 is recommended as a positive control antibody for Western Blot analysis of enhanced human GSTA1 expression in GSTA1 transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended:
1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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.

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.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

PROTOCOLS

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