

# GSTO1/2 (D-12): sc-166040

## BACKGROUND

GSTO1 (glutathione S-transferase  $\omega$  1), also known as p28 or GSTTlp28, is a 241 amino acid protein that localizes to the cytoplasm and contains both an N-terminal and a C-terminal GST domain. Expressed ubiquitously with highest expression in heart, liver and skeletal muscle, GSTO1 exists as a homodimer that functions as both a glutathione-dependent thiol transferase and a dehydroascorbate reductase. Specifically, GSTO1 catalyzes the reaction of glutathione with a wide variety of organic compounds to form thioethers, a process that is essential for the metabolism and detoxification of a variety of xenobiotics and carcinogens. Polymorphisms in the gene encoding GSTO1 may be associated with the development of childhood acute lymphoblastic leukemia, Parkinson's disease and Alzheimer disease. GSTO2 (glutathione S-transferase  $\omega$ -2) is related to GSTO1 and is expressed in a variety of tissues throughout the body where it functions to catalyze the conversion of RX and glutathione to HX and R-S-glutathione.

## REFERENCES

1. Ishikawa, T., et al. 1998. Molecular cloning and functional expression of rat liver glutathione-dependent dehydroascorbate reductase. *J. Biol. Chem.* 273: 28708-28712.
2. Kodym, R., et al. 1999. The cloning and characterization of a new stress response protein. A mammalian member of a family of  $\theta$  class glutathione S-transferase-like proteins. *J. Biol. Chem.* 274: 5131-5137.
3. Board, P.G., et al. 2000. Identification, characterization, and crystal structure of the  $\omega$  class glutathione transferases. *J. Biol. Chem.* 275: 24798-24806.
4. Yin, Z.L., et al. 2001. Immunohistochemistry of  $\omega$  class glutathione S-transferase in human tissues. *J. Histochem. Cytochem.* 49: 983-987.
5. Li, Y.J., et al. 2003. Glutathione S-transferase  $\omega$ -1 modifies age-at-onset of Alzheimer disease and Parkinson disease. *Hum. Mol. Genet.* 12: 3259-3267.
6. Whitbread, A.K., et al. 2003. Characterization of the human  $\omega$  class glutathione transferase genes and associated polymorphisms. *Pharmacogenetics* 13: 131-144.
7. Whitbread, A.K., et al. 2004. Glutathione transferase  $\omega$  class polymorphisms in Parkinson disease. *Neurology* 62: 1910-1911.
8. Wahner, A.D., et al. 2007. Glutathione S-transferase  $\mu$ ,  $\omega$ ,  $\pi$ , and  $\theta$  class variants and smoking in Parkinson's disease. *Neurosci. Lett.* 413: 274-278.

## CHROMOSOMAL LOCATION

Genetic locus: GSTO1/GSTO2 (human) mapping to 10q25.1; Gsto1/Gsto2 (mouse) mapping to 19 D1.

## SOURCE

GSTO1/2 (D-12) is a mouse monoclonal antibody raised against amino acids 1-241 representing full length GSTO1 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

GSTO1/2 (D-12) is recommended for detection of GSTO1 and GSTO2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ 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).

Molecular Weight of GSTO1: 31 kDa.

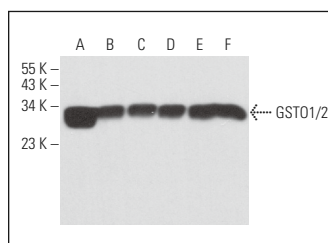
Molecular Weight of GSTO2: 28 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206, Jurkat whole cell lysate: sc-2204 or Hep G2 cell lysate: sc-2227.

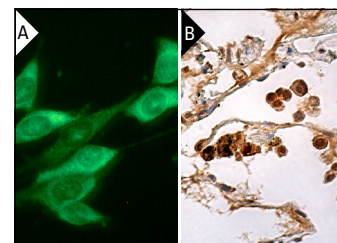
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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-IgG $\kappa$  BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

## DATA



GSTO1/2 (D-12): sc-166040. Western blot analysis of GSTO1/2 expression in NIH/3T3 (A), HEK293 (B), SW480 (C), MCF7 (D), Hep G2 (E) and Jurkat (F) whole cell lysates.



GSTO1/2 (D-12): sc-166040. Immunofluorescence staining of methanol-fixed NIH/3T3 cells showing cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human lung tissue showing nuclear and cytoplasmic staining of macrophages (B).

## 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.