Product Information

3050 Spruce Street, Saint Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

Glutathione S-Transferase
from human placenta

Catalog Number **G8642**
Storage Temperature: –20 °C

EC 2.5.1.18
CAS RN 50812-37-8
Synonyms: GST; Glutathione S-alkenetransferase;
Glutathione S-alkyltransferase;
Glutathione S-aralkyltransferase;
Glutathione S-aryltransferase;
Glutathione S-epoxidetransferase;
RX: Glutathione R-transferase

Product Description
Glutathione S-transferases (GST) are a family of proteins important in the detoxification of many xenobiotics in mammals. They catalyze the formation of thioether conjugates between reduced glutathione and hydrophobic compounds. The major biological function is believed to be a role in the elimination of reactive, electrophilic chemical species, many of which are generated by cellular oxidative reactions catalyzed by cytochrome P450 and other oxidases. This elimination defends cells against the mutagenic, carcinogenic, and toxic effects of the compounds. GST activity is present in plants, insects, yeast, bacteria, and most mammalian tissues especially in the liver, which plays a key role in detoxification.

Enzymatic activities are based on the conjugation of reduced glutathione with a second substrate. The individual proteins generally have activity with more than one class of substrate.

Molecular mass: 47 kDa (dissociates into equal subunits in the presence of SDS)

The product is supplied as lyophilized powder containing Tris buffer salts, reduced glutathione, and EDTA.

Protein: ≥25% (biuret)

Specific Activity: 25–125 units/mg-protein

Unit Definition: One unit will conjugate 1.0 μmole of 1-chloro-2,4-dinitrobenzene with reduced glutathione per minute at pH 6.5 at 25 °C.

Precautions and Disclaimer
This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions
Immediately before use, prepare a solution containing 0.075–0.15 unit/ml of Glutathione S-Transferase in 100 mM potassium phosphate buffer, pH 6.5, with 1.0 mM ethylenediaminetetraacetic acid (EDTA). Long term storage of this dilute enzyme solution is not recommended.

Storage/Stability
Store the product at –20 °C. When stored at –20 °C, the enzyme retains activity for at least 2 years.

References
1. Habig, W.H., et al., Glutathione S-transferase. The first enzymatic step in mercapturic acid formation. *J. Biol. Chem.*, **249**, 7130-7139 (1974).
2. Asaoka, K., and Takahashi, K.J., *Biochem.*, **82**, 1313 (1977).
3. Lee, C.-Y.G., *Biochem.*, *Soc. Trans.*, **12**, 30 (1984).
4. Asoka, K.J., *Biochem.*, **95**, 685, (1984)
5. Simons, P.C., and Vander Jagt, D.L., *Anal. Biochem.*, **82**, 334,(1977).
6. Warholm, M., et al., *Biochemistry*, **25**, 4119 (1986).

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