

Glutathione Reductase (Human)

Background : Glutathione reductase (GR) is a member of pyridine nucleotide-disulfide oxidoreductases, which includes the closely related enzymes thioredoxin reductase, lipoamide dehydrogenase, trypanothione reductase and mercuric ion reductase. GR is a cytoplasmic flavoenzyme widely distributed in aerobic organisms. The dimeric protein is composed of two identical subunits, each containing 1 FAD and 1 redox-active disulfide/dithiol as components of the catalytic apparatus. It plays a role in maintaining glutathione (GSH) in its reduced form by catalyzing the reduction of glutathione disulfide (GSSG) (1):



In most eukaryotic cells, GR maintains the ratio of [GSH]/[GSSG] elevated, and participates in several vital functions such as the detoxification of reactive oxygen species as well as protein and DNA biosynthesis (2).

Source : Purified from *E.coli* expressing the human Glutathione reductase gene

Molecular Weight : 51.7 kDa

Packaging size : 10 U

Specific activity : 50 U/mg

(Unit definition : One unit will reduce 1 μ mole of oxidized glutathione per min at pH 7.5 at 25°C)

Concentration : 1.0 mg/ml

Storage : Glutathione reductase is supplied with a vial of storage buffer (20mM HEPES, pH 7.5/ 10% glycerol). Store at -80°C.



Background Reference:

- (1) Carlberg, I. and Mannervik, B. (1985) *J. Biol. Chem.* **261**: 1629-1635.
- (2) Picaud, T. and Desbois, A. (2002) *J. Biol. Chem.* **277**: 31715-31721.

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