

Product Specification Sheet

**Glutathione Peroxidase (GPX) Antibodies**

Cat. # GPX11-A	Sheep Anti-Human GPX IgG, aff pure	<b>SIZE:</b> 100 ul
Cat. # GPX11-C	Human GPX protein control for WB	<b>SIZE:</b> 100 ul

Highly reactive and potentially dangerous reactive oxygen species (ROS) are normally produced within the cells, primarily from the mitochondrial respiratory chain where in excess electrons are donated to molecular oxygen (O<sub>2</sub>) to generate peroxide anion (O<sub>2</sub><sup>-</sup>). Superoxide anion is reduced by the superoxide dismutase (SOD) to hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) and hydrogen peroxide is reduced to water (H<sub>2</sub>O) by catalase, located primarily in the peroxisomes, and by glutathione peroxidase (GPx), located in the mitochondria and cytosol. Hydrogen peroxide, in the presence of transition metals, can be converted to the highly toxic hydroxyl radical (OH<sup>•</sup>) and all three of the ROS (O<sub>2</sub><sup>-</sup>, H<sub>2</sub>O<sub>2</sub>, and OH<sup>•</sup>) can damage macromolecules (proteins, DNA etc). The GPxs are commonly considered the most important for ROS defense since they have broader substrate specificities and stronger affinity for H<sub>2</sub>O<sub>2</sub> than catalases.

Two of the main types of glutathione peroxidases (GPxs) that have been characterized in cells are the classical GPx (cGPx) and the phospholipid hydroperoxide GPx (PHGPx). cGPx is multimeric (commonly tetrameric) and soluble, whereas PHGPx is monomeric and often membrane-associated. In addition, whereas cGPx has specificity for glutathione as a reducing substrate, PHGPx re-reduction may be coupled to alternative systems such as the thioredoxin pathway. Thus, PHGPx is often considered the principal cellular enzyme capable of repairing membrane lipid peroxidation, the highly damaging process that has been linked to pathological conditions such as ischemic injury, atherosclerosis, and carcinogenesis. Human GPX1 (Glutathione peroxidase 1 or GSHPx-1 or Cellular glutathione peroxidase, 201-aa, chromosome 3p21.3) contains Selenium in the form of selenocysteine. GPX is one of only a few proteins known in higher vertebrates to contain selenocysteine. This unusual amino acid occurs at the active site of GPX and is coded by the nonsense (stop) codon TGA. Neonatal deficiency of the selenoenzyme glutathione peroxidase, with hematologic consequences, may result from 'selenium imbalance' during pregnancy.

**Source of Antigen and Antibodies**

<b>Antigen</b>	Purified Human GPX from red cells (erythrocytes)
<b>Ab Host/type</b>	Sheep, Polyclonal, IgG ( <b>Cat # GPX11-A</b> ) purified over the antigen column
<b>2ab</b>	Anti-Sheep IgG (H+L)-HRP conjugate, <b>cat # 30520</b>
<b>-ve control</b>	Sheep (non-immune) Serum IgG, purified <b>Cat # 20006-1</b>

Human GPX11-C protein for Western blot +ve control (**Cat # GPX11-C**) is supplied in SDS-PAGE sample buffer (reduced). Load 10 ul/lane of **GPX11-C** for good visibility with antibody Cat # **GPX11-A**. Store at -20oC in suitable size aliquots. SDS may crystallize in cold conditions. It should redissolve by warming before taking it from the stock. It should be heated once prior to loading on gels.

If the product has been stored for several weeks, then it may be preferable to add 5 ul of fresh 2x sample buffer per 10 ul of the **GPX11-C** solution prior to heating and

loading on gels. This preparation is not biologically active. It is not suitable for ELISA or other applications where native protein is required. This preparation is intended for qualitative purpose and not to serve as standard of known concentration. Do not freeze, thaw, or heat repeatedly

**Form & Storage of Antibodies/Peptide Control**

**Affinity pure IgG**

100 ug/100ul solution lyophilized powder  
Supplied in **Buffer:** PBS+0.1% BSA  
**Reconstitute powder** in PBS at 1mg/ml

**Storage**

**Short-term:** unopened, undiluted liquid vials at -20°C and powder at 4°C or -20°C..

**Long-term:** at -20°C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

**Stability:** 6-12 months at -20°C or below.

**Shipping:** 4°C for solutions and room temp for powder

**Recommended Usage**

**Western Blotting** (1:500-1:2000) using ECL technique). A 20-25-kda band (under reducing condition) is observed. Native protein is ~88 Kda.

**ELISA:** Control antigen can be used to coat ELISA plates at 1 ug/ml and detected with antibodies (1k-10K

**Histochemistry & Immunofluorescence:** Not tested.

**Specificity & Cross-reactivity**

Anti-GPX antibodies react with human GPX from red cells. Antibody cross-reactivity in various species has not been studied.

**General References:** Maddipati KR et al (1987) JBC 262, 17398-17403; Takahasi K et al (1990) J. Biochem. 108, 145-148; Esworhty RS et al (1991) Arch Biochem. Biophys. 286, 330-336; Yoshimuar S et al (1994) Gene 145, 293-297

\*This product is for In vitro research use only.

**Related material available from ADI**

**Antibodies to SOD1-3, GST alpha, mu, pi Nitrotyrosine, MDA, HNE,**

GPX11-A-P 71216S

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