

OxisResearch™

Bioxytech® Assay Systems

Antioxidant Biomarkers

Superoxide Dismutase
Total Glutathione
Glutathione
Glutathione Peroxidase (Cellular)
Glutathione Peroxidase (Plasma)
Glutathione Reductase
GSH/GSSG Ratio
Catalase

Nitric Oxide Biomarkers

Nitric Oxide (Enzymatic)
Nitric Oxide (Non-Enzymatic)
Nitric Oxide Synthase (Radioactive)
Nitric Oxide Synthase (Colorimetric)

Oxidative Biomarkers

MDA
Total Lipid Hydroperoxides
8-Isoprostane
Hydrogen Peroxide
8-Hydroxydeoxyguanosine
Aconitase
4-Hydroxyalkenals

Inflammatory Biomarkers

Myeloperoxidase
Lactoferrin

OxisResearch™

6040 North Cutter Circle, Suite 317
Portland, OR 97217-3935 • U.S.A.

Phone: 503 283-3911 • 800 547-3686

Fax: 503 283-4058

E-mail: info@oxisresearch.com

Web Site: www.oxisresearch.com

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ANTIOXIDANT BIOMARKERS

GSH-420 ASSAY SYSTEM

IMPROVED!

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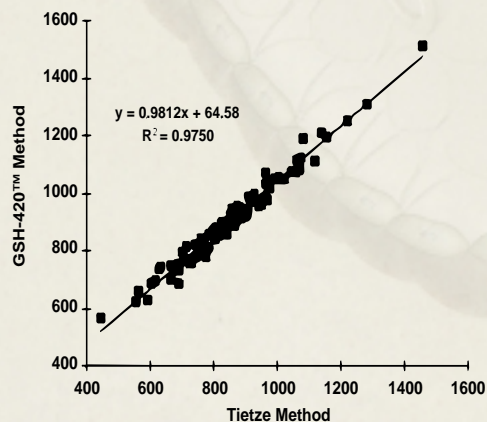
ANTIOXIDANT BIOMARKERS

GSH-420 ASSAY SYSTEM

Catalog Number: 21023

Reduced glutathione is a ubiquitous tripeptide (γ -glutamylcysteinylglycine) which functions as a coenzyme in amino acid transport, detoxification of xenobiotics and carcinogens, synthesis of DNA precursors and as an antioxidant. The Bioxytech[®], GSH-420[™] is the next generation of the popular GSH-400[™] assay allowing for quantitative, colorimetric determination of glutathione in biological samples. Unlike its predecessor, this new assay allows for measurement of "total" GSH.

The GSH-420[™] compares favorably with other boxed assay methods. The figure below shows the correlation between the GSH-420[™] and the DTNB-enzyme (Glutathione Reductase) recycling assay which is used in the GSH/GSSG-412[™] assay from OxisResearch[™]. The correlation coefficient obtained by linear regression is 0.9874.

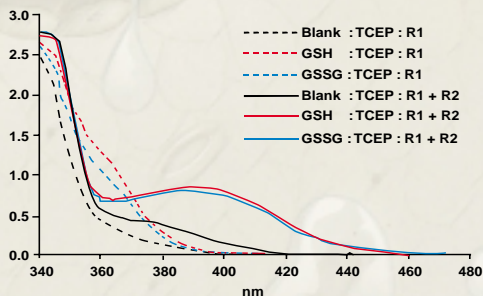


GSH-420 Method:

Our method is based on the formation of a chromophoric thione. There are three major steps to the reaction:

1. Sample is buffered and the reducing reagent tris (2-carboxyethyl) phosphine (TCEP) is added to reduce any oxidized glutathione (GSSG) present in the sample.
2. The chromagen, 4-chloro-1-methyl-7-trifluoromethylquinolinium methylsulfate, is added to the sample forming thioethers with all thiols.
3. The pH is raised by base addition resulting in a β -elimination reaction and formation of a chromophoric thione specific to GSH.

The measurement is made at 420nm to negate the contribution by the thioether pool having peak absorbance at 356nm. The figure below shows characteristic spectra generated after addition of base.



Improvements over existing GSH-400[™] Assay

- No ambiguity in "total" vs. "reduced" measurement. *
- Greater specificity
- Precipitation reagent included
- Available on OxyScan[™]

* Note: Omission of reducing agent allows for approximation of reduced (bio-available) GSH as with the existing GSH-400[™] assay.

PRODUCT SUMMARY

Catalog Number: 21023

Intended Use:

Quantitative measurement of "total" glutathione.

Format:

100 test colorimetric

Kit Contents:

- Assay Buffer
- Chromogen
- Color Developer
- Reducing Reagent
- Precipitation Reagent
- Calibrators (low and high)

Storage and Stability:

12 months from date of manufacture when stored in the dark at 2-4°C.

Specimen Requirements:

Erythrocyte lysates, whole blood, tissue homogenates

Precision:

| | LOW | HIGH | BLOOD |
|-----------------------|-------|-------|-------|
| Mean | 124.3 | 248.6 | 687.7 |
| Intra Assay (%CV) | 2.3 | 1.6 | 2.6 |
| Inter Assay (%CV) | 5.8 | 3.5 | 5.8 |
| Total Precision (%CV) | 6.0 | 3.7 | 6.1 |

Sensitivity:

9 μ M in the sample