



# OxiDates<sup>o</sup>

ZeptoMetrix Corporation

Oxidative Stress/Free Radical News

Issue 2, April 2004

## Glutathione Peroxidase/TBARS



Total Glutathione Peroxidase Assay Kit

A recent article in the NEJM reported that low glutathione peroxidase-1 (GPx) activity was associated with increased risk for acute myocardial infarction which was exacerbated in smokers whose hazard ratio was raised three times above nonsmokers.<sup>1</sup> Although this is a very important finding, the paper did not include any direct assay for lipid oxidation.

We have previously reported that elevated TBARS (Thiobarbituric Acid Reactive Substances) was positively related to decreased GPx and was the single best discriminator for cardiovascular disease among several oxidative stress bio-markers analyzed.<sup>2</sup> Changes in both TBARS and GPx levels have also been noted in diabetes.<sup>3</sup>

TBARS has been considered a promising indicator for pre-

dicting complications following cardiovascular by-pass surgery.<sup>4</sup> Oxidation of LDL has been shown to be strongly correlated with myocardial infarction.<sup>4</sup> Therefore, the OXItek kit for TBARS analysis in combination with our new Total Glutathione Peroxidase (GPx) Assay Kit are appropriate for analysis of these biomarkers, in research studies following cardiovascular surgery and during their post-surgical management.

The OXItek kits are excellent, simple assays that provide within and between run consistency for reproducible results in a wide variety of applications. Please contact the staff of the Oxidative Stress Program at ZeptoMetrix Corp. for assistance with analytical questions. We look forward to supporting your research endeavors.

Donald Armstrong, Ed.D., Ph.D., D.Sc.  
Scientific Adviser

### References

- 1 Blackenberg S, Rupprecht HJ, Bickel C, Torzewski M, Hafner G, Tiret L, Smieja M, Cambien F, Meyer J, Lackner KJ et al Glutathione Peroxidase 1 activity and cardiovascular events in patients with coronary artery disease. NEJM 2003 Oct; 349: 1605-1613.
- 2 Schisterman EF, Faraggi D, Browne R, Freudenheim J, Dorn J, Muti P, Armstrong D, Reiser B, Trevisan M. TBARS and cardiovascular disease in a population based sample. J Cardiovasc Risk. 2001 Aug; 8(4): 219-25.
- 3 Trevisan M, Browne R, Ram M, Muti P, Freudenheim J, Carosella AM, Armstrong D. Correlates of markers of oxidative status in the general population. Am J Epidemiol. 2001 Aug 15; 154(4): 348-56.
- 4 Ochoa JJ, Vilchez MJ, Mataix J, Ibanez-Quiles S, Palacios MA, Munoz-Hoyos A. Oxidative stress in patients undergoing cardiac surgery: comparative study of revascularization and valve replacement procedures. J Surg Res. 2003 May 15; 111(2): 248-54.



## ZeptoMetrix Corporation

872 Main Street  
Buffalo, New York 14202

OXIDATES<sup>®</sup> Edited by:  
Rama Dey-Rao, Ph.D.  
Director, Oxidative Stress Program

www.zeptometrix.com  
1-800-274-5487

### OXIDATIVE STRESS PRODUCTS AND SERVICES



#### Oxidative Stress Tests Services

Custom Laboratory Services

##### Oxidative Damage

- TBARS
- LHP Profile
- LDL/VLDL TBARS
- Oxidized Glutathione (GSSG)
- Protein Carbonyls
- Oxidized DNA (8-Oxo-dG/8-Oxo-dA)
- Nitric Oxide
- 8-Isoprostane

##### Antioxidant Enzymes

- RGC Glutathione Peroxidase
- RBC Glutathione Reductase
- RBC Glutathione S-Transferase
- Plasma Glutathione Peroxidase
- RBC Catalase
- Superoxide Dismutase (SOD) Isoforms
  - Mitochondrial Mn, SOD
  - Soluble Cu, Zn, SOD
- Paraoxonase (PON, Arylesterase Activity)
- Paraoxonase (PON, Paraoxonase Activity)
- PON1 Gln-Arg192 Phenotyping Assay
- G6PDH

##### Antioxidant Micronutrients

- Fat Soluble Vitamin Profile:
  - Vitamin E
  - Beta-Carotene
  - Alpha Carotene
  - Lycopene
  - Lutein/Zeaxanthin
  - Beta-Cryptoxanthin
  - Vitamin A
- Vitamin C
- TEAC/ORAC
- Reduced Glutathione (GSH)
- Uric Acid

##### Routine Analytes

- Total Cholesterol
- HDL Cholesterol
- LDL Cholesterol
- Triglycerides
- Total Protein
- Hemoglobin
- Creatinine



#### Products

- TBARS Assay cat. # 0801192
- DNA Isolation kit cat. # 0805001
- Total Glutathione Peroxidase Assay Kit cat. # 0805002
- Nucleoside Standards Inquire
- Dinucleotide Standards Inquire

