

# 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

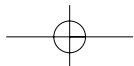
E-mail: [info@oxisresearch.com](mailto:info@oxisresearch.com)

Web Site: [www.oxisresearch.com](http://www.oxisresearch.com)

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OXIS Health Products Inc.

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

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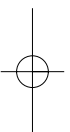
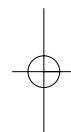
# ANTIOXIDANT BIOMARKERS

## CATALASE - 520 ASSAY SYSTEM

**NEW!**

# OxisResearch™

Your Source for  
Oxidative Stress  
Products and Services



# ANTIOXIDANT BIOMARKERS

## CATALASE-520 ASSAY SYSTEM

Catalog Number: 21042

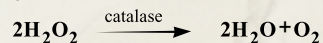
Catalase is a ubiquitous antioxidant enzyme that is present in most aerobic cells. It serves as one of the body's defense systems against  $H_2O_2$ , a strong oxidant that can cause intracellular damage. It is found in high concentration in erythrocytes and liver while lower concentrations are found in skeletal muscle, brain and heart.

Measurement of catalase activity can be useful as a diagnostic tool for certain diseases such as acute pancreatitis and some liver diseases where values are elevated. Each unit of catalase decomposes  $1\mu M$  of  $H_2O_2$  per minute at  $25^\circ C$  and pH 7.0. The common method for the determination of catalase involves measuring the change in absorbance at 240nm (hydrogen peroxide decomposition due to catalase activity) in one minute. Criticisms of the method include interference from non-specific UV absorbing materials and the requirement of quartz cuvettes. Because of this, *OxisResearch*<sup>TM</sup> has developed a colorimetric endpoint assay. The release of the new Catalase-520 assay adds to the popular Bioxytech<sup>®</sup> family of Antioxidant Biomarkers and provides another useful tool for oxidative stress investigations.

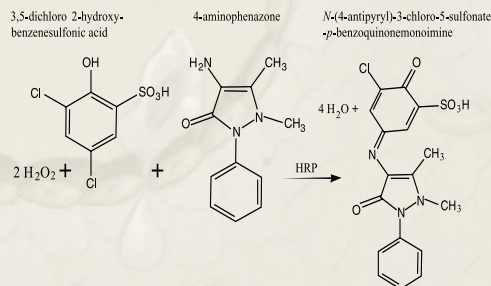
### Catalase-520 Method:

The *OxisResearch*<sup>TM</sup> Catalase-520 assay employs a two-step reaction scheme.

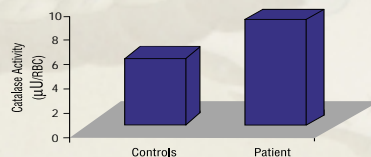
**Reaction 1:** Sample catalase reacts with a known quantity of  $H_2O_2$ . The reaction is stopped after 1 minute with sodium azide ( $NaN_3$ ).



**Reaction 2:** In the presence of horseradish peroxidase (HRP), remaining  $H_2O_2$  reacts with 3,5-Dichloro-2-hydroxybenzenesulfonic acid and 4-Aminophenazone to form a chromophore with a color intensity inversely proportional to the amount of catalase in the original sample.



As a test of the assay's performance, *OXIS* compared red blood cell catalase activity in a Thalassemia patient with that of a control population. In agreement with published values the graph below (showing increased activity in the patient relative to control levels) is an example of the assay's usefulness in biological systems.



## PRODUCT SUMMARY

Catalog Number: 21042

### Intended Use:

Quantitative measurement of Catalase enzyme activity.

### Format:

100 test colorimetric

### Kit Contents:

- Assay Buffer
- Substrate
- Standards
- Sample Diluent
- Chromogen
- HRP
- Stop Reagent

### Storage and Stability:

9 months from date of manufacture when stored as specified.

### Specimen Requirements:

Whole blood, Serum, Plasma, Cell Lysate and Tissue

### Assay Precision:

	LOW	HIGH	CELL LYSATE
Mean (U/mL)	14.08	56.66	38.65
Intra Assay (%CV)	2.39	0.78	1.29
Inter Assay (%CV)	4.03	2.13	5.55
Total Precision (%CV)	4.53	2.23	5.66

### Sensitivity:

LLD in reaction mixture = 0.097U/mL  
LLD in sample = 1.71U/mL