

# OxisResearch™ Bioxytech® Assay Systems

## Oxidative Biomarkers

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

## Nitric Oxide Biomarkers

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

## Antioxidant Biomarkers

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

## Inflammatory Biomarkers

Myeloperoxidase  
Lactoferrin

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# OXIDATIVE BIOMARKERS

## ACONITASE-340 ASSAY SYSTEM

**NEW!**

# OxisResearch™

Your Source for  
Oxidative Stress  
Products and Services

## OXIDATIVE BIOMARKERS

### ACONITASE-340 ASSAY SYSTEM

Catalog Number: 21041

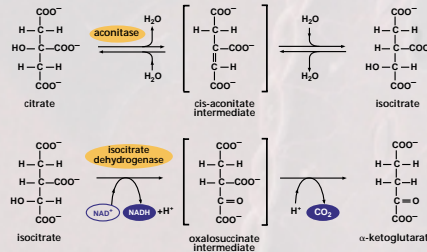
There are three biological components most commonly looked at in assessing oxidative insult: lipid peroxidation, protein oxidation and DNA oxidation. While excellent means for assessing lipid peroxidation and DNA oxidation exist, assessment of protein oxidation has been problematic. Carbonylated proteins, once thought to be a very useful marker, have not proven adequate due to sample instability and reproducibility problems.

According to recent literature, decreased aconitase enzyme activity is a sensitive and specific indicator of oxidative damage during aging, Parkinson's and other disease progression. The function of aconitase is to isomerize citrate to isocitrate a key intermediate of the citric acid cycle. Because of its role in cellular energy production, aconitase enzyme function is well positioned as an important marker relative to biological decline.

Two forms of aconitase are known (mitochondrial and cytosolic). The cytosolic form is a bifunctional protein. The holo (4Fe/4S) form has aconitase activity while the fully apo (iron-free) form, known as Iron Regulatory Protein-1 (IRP-1) is devoid of enzymatic activity but plays an important role in regulating the intracellular iron level. In a complete cellular homogenate, both mitochondrial and cytosolic forms will contribute to the total aconitase activity, with the mitochondrial aconitase being predominant in most tissue types.

#### Aconitase-340 Method:

The OxisResearch Aconitase-340 assay utilizes the coupled reaction of citrate to isocitrate and isocitrate to  $\alpha$ -ketoglutarate as the basis for quantitating aconitase enzyme activity.



Under the assay conditions, the rate of NADH production is a measure of aconitase activity.

To test the performance of the OXIS kit in real biological systems, aconitase activity was measured in liver samples from a parenterally fed rat model. Using the Aconitase-340 assay, activity levels of parenterally fed animals were significantly ( $P=0.0002$ ) reduced compared to controls (Figure 1).

Aconitase Activity in Total Parenteral Rat Model

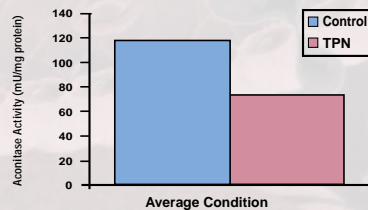


Figure 1

## PRODUCT SUMMARY

Catalog Number: 21041

#### Intended Use:

Quantitative measurement of aconitase enzyme activity.

#### Format:

100 test colorimetric.

#### Kit Contents:

- Assay Buffer
- Substrate
- Enzyme
- NAD<sup>+</sup>
- Standards

#### Storage and Stability:

12 Months from date of manufacture when stored as specified.

#### Specimen Requirements:

Tissue or cultured cells.

#### Assay Precision:

	ACONITASE IN BUFFER		BIOLOGICAL RAT LUNG
	LOW	HIGH	
Mean (A <sub>340</sub> /min)	0.0052	0.0254	0.0049
Intra Assay (%CV)	5.11	1.63	3.64
Inter Assay (%CV)	4.82	3.53	8.63
Total Precision (%CV)	6.00	3.71	9.01

#### Sensitivity:

- 0.625 mU/mL in the reaction mixture.
- 2.5mU/mL in original sample.