2025 eBook: Specialist Insights on Oxidative Stress and Redox Balance

Oxidative Stress is a pathological condition caused by an imbalance between the production of reactive oxygen species (ROS) and the body's antioxidant defenses. This imbalance leads to cellular damage, affecting critical biomolecules such as proteins, lipids, and DNA. ROS are highly reactive molecules produced during normal metabolic processes or in response to external factors like pollution, toxins, or inflammation. While ROS play essential roles in cell signaling and immune defense, their excess can overwhelm antioxidant systems, resulting in Oxidative Stress.
This condition is implicated in the development of numerous chronic diseases, including cancer, diabetes, cardiovascular disorders, and neurodegenerative diseases. Understanding Oxidative Stress is crucial for uncovering disease mechanisms and identifying therapeutic strategies.

Crescendo Care offers a comprehensive analysis of key biomarkers related to **Oxidative Stress and Redox Balance.** Below are some examples of the biomarkers we focus on, and we also provide additional tests for customized panels.

Don't hesitate to contact us with any questions or to suggest other biomarkers you may need!

OXIDATIVE STRESS AND REDOX BALANCE

2-Hydroxyethylthioacetate (2-HET)	7-ketocholesterol (7-KC)	Adenosine Monophosphate (AMP)
2PY	7,8-dihydroxy-8-oxoguanine (8-oxo-Gua)	Adenosine Triphosphate (ATP)
3-methyladenine (3-MeA)	8-hydroxy-2'-deoxyguanosine (8-OHdG)	Crotonaldehyde, glyoxal, methylglyoxal
4-hydroxy-2-nonenal (4-HNE)	8-nitroguanine	Cystathionine
4PY	Acetyl-CoA	Cysteamine
5-hydroxymethyluracil (5-HmU)	Acrolein	Cysteic acid
6PY	Adenosine	Cysteine

OXIDATIVE STRESS AND REDOX BALANCE

- Cysteine sulfate
- Cysteine-glutathione disulfide
- Cystine
- Dihydrolipoic acid
- Dimethylglycine (DMG)
- DNA-protein adducts
- Epoxides of fatty acids (EETs, EEQs)
- Flavin Adenine Dinucleotide (FAD)
- Flavin Mononucleotide (FMN)
- Formylmethionine
- Furanocoumarins
- Glutamic acid
- Glutamine
- Glutamine sulfonate
- Glutathione disulfide (GSSG)
- Glycine
- Homocysteine
- Homocysteine thiolactone
- Homocystine
- Hypotaurine
- Isoprostanes (F2, F4, E2, D2)
- Ketodienes: 9-oxoODE, 13-oxoODE
- Lactic acid
- Lipoic acid
- Lipoxins
- Malondialdehyde (MDA)
- Mercapturic acid
- Methionine
- Methionine sulfinic acid
- Methionine sulfone
- Methionine sulfoxide
- Methylglyoxal
- Methylthioadenosine (MTA)
- N-Acetylcysteine
- Nicotinamide Adenine Dinucleotide (oxidized) (NAD)
- Nicotinamide Adenine Dinucleotide (reduced) (NADH)
- Phthalates
- Pyruvic acid
- Reduced Glutathione (GSH)
- S-Adenosylhomocysteine
- S-Adenosylmethionine
- Selenomethionine
- Serine
- Sulfuric acid (H_2SO_4)
- Taurine
- Taurochenodeoxycholate
- Taurocholate
- Tauroursodeoxycholic acid (TUDCA)
- Thiosulfate
- γ-Glutamylcysteine

2025 eBook: Specialist Insights on DNA Damage Biomarkers

DNA damage biomarkers are crucial for understanding the impact of various stresses on cellular health, including environmental factors like UV and ionizing radiation, as well as endogenous processes such as replication stress and oxidative metabolism. These biomarkers can be used to assess exposure to harmful agents, predict long-term effects such as cancer risk, and guide therapeutic interventions. Additionally, these biomarkers contribute significantly to research on longevity by providing insights into the aging process.

Crescendo Care provides a targeted quantification of several **key biomarkers related to DNA damage.** Below are some examples of the biomarkers we focus on, and we also provide additional tests for customized panels.

Don't hesitate to contact us with any questions or to suggest other biomarkers you may need!

DNA DAMAGE

- 8-hydroxy-2'-deoxyguanosine (8-OHdG)
- 8-nitroguanine
- 5-hydroxymethyluracil (5-HmU)
- 3-methyladenine (3-MeA)
- 7,8-dihydroxy-8-oxoguanine (8-oxo-Gua)
- DNA-protein adducts
- Furanocoumarins

2025 eBook: Specialist Insights on Lipid Peroxidation Biomarkers

Crescendo Care offers a targeted quantification of several critical biomarkers associated with **Lipid Peroxidation.** These biomarkers are essential for assessing oxidative stress and its impact on various physiological and pathological processes. Below are some examples of the key biomarkers we focus on, along with options for customized panels tailored to specific research or clinical needs.

Don't hesitate to contact us with any questions or to suggest other biomarkers you may need!

LIPID PEROXIDATION

- Malondialdehyde (MDA)
- 4-hydroxy-2-nonenal (4-HNE)
- Acrolein
- Ketodienes: 9-oxoODE, 13-oxoODE
- Phthalates
- Lipoxins
- 7-ketocholesterol (7-KC)
- Crotonaldehyde, glyoxal, methylglyoxal
- Isoprostanes (F2, F4, E2, D2)
- Epoxides of fatty acids (EETs, EEQs)

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2025 eBook: Specialist Insights on Thiol-Metabolome

The Thiol-Metabolome is crucial for understanding cellular health, as it plays a key role in maintaining redox homeostasis and managing oxidative stress. Its quantification is a powerful tool for investigating cellular **redox states** and advancing research on **aging** and **longevity.** Insights gained from the Thiol-Metabolome are vital for understanding disease mechanisms related to cancer, diabetes, cardiovascular issues, and inflammatory disorders.
Given its extensive implications for health and disease, the Thiol-Metabolome is a critical focus for both clinical and research applications.

Crescendo Care offers a comprehensive and targeted analysis of key biomarkers within the **Thiol-Metabolome.**

Feel free to contact us with any questions or to suggest additional biomarkers that meet your specific needs!

THIOL-METABOLOME

2-Hydroxyethylthioacetate (2-HET)	Adenosine	Cysteic acid
2PY	Adenosine Monophosphate (AMP)	Cysteine
4PY	Adenosine Triphosphate (ATP)	Cysteine sulfate
6PY	Cystathionine	Cysteine-glutathione disulfide
Acetyl-CoA	Cysteamine	Cystine

THIOL-METABOLOME

- Dihydrolipoic acid
- Dimethylglycine (DMG)
- Flavin Adenine Dinucleotide (FAD)
- Flavin Mononucleotide (FMN)
- Formylmethionine
- Glutamic acid
- Glutamine
- Glutamine sulfonate
- Glutathione disulfide (GSSG)
- Glycine
- Homocysteine
- Homocysteine thiolactone
- Homocystine
- Hypotaurine
- Lactic acid
- Lipoic acid
- Mercapturic acid
- Methionine
- Methionine sulfinic acid
- Methionine sulfone
- Methionine sulfoxide
- Methylglyoxal
- Methylthioadenosine (MTA)
- N-Acetylcysteine
- Nicotinamide Adenine Dinucleotide (oxidized) (NAD)
- Nicotinamide Adenine Dinucleotide (reduced) (NADH)
- Pyruvic acid
- Reduced Glutathione (GSH)
- S-Adenosylhomocysteine
- S-Adenosylmethionine
- Selenomethionine
- Serine
- Sulfuric acid (H_2SO_4)
- Taurine
- Taurochenodeoxycholate
- Taurocholate
- Tauroursodeoxycholic acid (TUDCA)
- Thiosulfate
- γ-Glutamylcysteine