
Preface

I started as an editor in 1996 to publish books for Humana Press that emphasized methods and protocols related to free radicals pathology and antioxidants protection that was launched in the first featured volume (number 108) that appeared in 1998. This was followed by volumes 186 and 196 in 2002, which, at that time, completed the first three books on oxidative stress. In 2007, I was guest editor for a special issue, volume 37, on a Free Radicals in Biosystems symposium also published by Humana Press in the journal of *Molecular Biotechnology*. In 2009, I edited volumes 579 and 580 on *Lipidomics: Methods and Protocols* and coauthored volume 1028 in 2013 on *Oxidative Stress and Nanotechnology*. More books are under consideration. Our expectation is to publish additional high-quality and useful protocols. I hope those will be available by 2015/2016 to complete the basic scientific desk reference.

In 2008, a new collection of volumes was approved; the first being called *Advanced Protocols in Oxidative Stress I* (volume 477) and 2 years later in 2010 was *Advanced Protocols in Oxidative Stress II*, volume 594. The proliferation of information in search engines make it possible to review meaningful information relative to methods approximately every 2–3 years. Data currently shows no change since 2000 in the antioxidant-to-oxidative stress ratio as a percentage of total citations and has remained constant in this subheading category:

Total citations	AOX–OS/ratio
2000—Oxidative stress and free radicals = 2,873 Antioxidants = 903	24 %
2008—Oxidative stress and free radicals = 15,938 Antioxidants = 5,109	24 %
2010—Oxidative stress and free radicals = 25,975 Antioxidants = 7,283	22 %
2013—Oxidative stress and free radicals = 29,076 Antioxidants = 8,001	22 %

This analysis indicates that, even though the free radical biomarkers showed a substantial increase over the last 3 years, the antioxidant number has remained relatively constant since 2000, which is our reference point, meaning that antioxidant capacity biomarkers should be the next target for new research to keep pace and balance.

The present book is the latest venture under the advanced heading. It has 31 chapters and covers technology ranging from a portable hand-held detector for remote analysis of antioxidant capacity to sophisticated technology such as shotgun lipidomics, mitochondrial imaging, nanosensors, fluorescent probes, chromatographic fingerprints, computational models, and biostatistical applications. Several chapters have shown the effect of

pro-oxidation and antioxidants as inflammatory mediators in signaling pathways leading from the initial stimulus to termination through redox cycles. Such books save the investigator significant time and effort allowing them to focus on their topic of interest. The overall series has 266 cutting-edge technologies to select from at the present time.

I acknowledge Dennis Armstrong who assisted me with organization, computerization, and updated technology, the in-house editors, and numerous colleagues who encouraged me to develop and expand the series.

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