



Book review

Critical Reviews of Oxidative Stress and Aging: Advances in Basic Science, Diagnostics and Intervention

Editors: Richard G. Cutler and Henry Rodrigues, World Scientific Publishing Co., Singapore, 2003, 1523 pp, in two volumes; hard back, price USD 185; ISBN 981-02-4636-6 (for the set).

This two-volume set with its 84 chapters, which have been consistently well written by almost 200 authors from all around the world, is a highly valuable source of information on free radical chemistry, methodology, aging research, interventions and ethics. Although the editors have tried to arrange the wide variety of topics in some logical sequence by putting them in 14 sections, their arrangement is not completely satisfactory. However, that limitation should in no way undermine the importance and usefulness of this compendium.

Volume 1 contains six sections, the first four of which include a brief chapter on the historical perspective on the metabolic rate, free radicals and aging (R. Allen and A. Balin), followed by 20 chapters on free radical chemistry (G. Buettner and R. Mason, J. Termini, J. Beckman), redox regulation and cell signaling (I. Hittori et al., A. Holmgren, T. Tetsuka and T. Okamoto), and methods for the measurement of oxidative stress in nucleic acids, protein, lipids and carbohydrates, written by well-known scientists, such as M. Dizdaroglu, H. Kasai, H. Poulsen, A. Riggs, S. Goto and V. Monnier, to name a few. Although there is some overlapping and repetition in several articles included in these sections, especially those on DNA damage and repair, which could have been avoided by more careful and rigorous editing, most of these articles provide a wealth of basic information at theoretical and practical levels. Section 5 covers a discussion of the

advantages and disadvantages of a range of dietary oxidants, including vitamins (T. Visarius, A. Azzi, B. Ames, H. Griffiths, J. Lunec and others), flavonoids (C. Rice-Evans), and proanthocyanidins (D. Bagchi and H. Preuss), used in research and therapy. This is followed by eight articles providing a comprehensive review of endogenous antioxidants and repair mechanisms, including oxidative defense mechanisms (C. Teoh and K. Davies), heme oxygenase (Y. Kang), genomic DNA repair (T. O'Conner), mitochondrial DNA repair (N. Souza-Pinto and V. Bohr), alpha-lipoic acid (C. Sen et al.), coenzyme Q10 (R. Alleva) and *in vivo* assessment of antioxidant status (M. Meydani and L. Zubic). Thus, the first volume of this set is mainly about the basic biochemical pathways of occurrence of oxidative damage and its repair, which makes it an extremely useful source of information.

Volume 2 deals mostly with the issues related to aging, age-related diseases, evolution of lifespan, genes involved in aging and longevity, gerontomodulation by food restriction, exercise, antioxidants and genes, and economic and social implications of lifespan extension. Once again, some of the well-known biogerontologists have contributed excellent articles in this volume, and these authors include S. Coles, L. Packer, K. Kitani, A. Richardson, T. Kirkwood, M. Jazwinski, R. Arking, E. Wang, B. Villeponteau, D. Yarosh and M. Fossel. An almost 100-page long article by one of the editors, Richard Cutler, is an enlightening and thought-provoking summary of his life-long passion for aging research and intervention.

Finally, this is a set of two volumes on oxidative stress and aging that I am surely going to consult repeatedly during my research, teaching and general education for years to come. I strongly recommend that you do the same.

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Editor-in-Chief

