MANGANESE AND ITS ROLE IN BIOLOGICAL PROCESSES
volume 37 of the series
"METAL IONS IN BIOLOGICAL SYSTEMS"
edited by Astrid Sigel and Helmut Sigel
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Volume 37, devoted to manganese, an essential element for many living systems, including mammals, with more than 20 identified functions in enzymes and proteins, describes its role in biology, offers a comprehensive and timely account of this fascinating topic by an impressive collection of distinguished international authorities:
Gerald T. Babcock and **Curtis W. Hoganson** (USA), **Ralf Bogumil, Reinhard Kappl** and **Jürgen Hüttermann** (Germany), **David W. Christianson, David E. Ash** and **J. David Cox** (USA), **James D. Crowley, Deborah A. Traynor** and **David C. Weatherburn** (New Zealand), **Valeria Cizewski Culotta** (USA), **Richard J. Debus** (USA), **Jodi L. Ensunsa** (USA), **Andrew L. Feig** (USA), **Michael H. Gold, Heather L. Youngs** and **Maarten D. Sollewijn Gelpke** (USA) **Stephen E. Halford, Geoffrey S. Baldwin** and **Niall A. Gormley** (UK), **A. Joseph Kalb (Gilboa), Jarjis Habash, Nicola S. Hunter, Helen J. Price, James Raftery** and **John R. Helliwell** (Israel/UK), **Carl L. Keen , Jodi L. Ensunsa** and **Michael S. Clegg** (USA), **James C. K. Lai, Margaret J. Minski, Alex W. K. Chan** and **Louis Lim** (UK), **James J. Morgan** (USA), **Vincent L. Pecoraro** and **Wen-Yuan Hsieh** (USA), **James E. Penner-Hahn, Jungwon Hwang** and **Derek W. Yoder** (USA), **Lawrence Que, Jr.** and **Mark F. Reynolds** (USA), **George H. Reed** and **Russell R. Poyner** (USA), **Zdenko Rengel** (Australia), **Frank Rusnak** (USA), (USA), and **James W. Whittaker** (USA).

In twenty stimulating chapters, "Manganese and Its Role in Biological Processes" highlights first the availability of this element to organisms, its uptake and transport in microorganisms and plants as well as its role in health and disease of animals and humans including its toxicology. The use of Mn^{2+} as a probe for other divalent metal ions is evaluated and the enzymes and proteins containing manganese are presented in an overview. The roles of manganese in plant lectins (concanavalin A), phosphatases, xylose isomerase, and arginase are examined. Model complexes regarding redox enzymes are elucidated, and individual accounts on manganese-containing catechol dioxygenases, catalases, peroxidases, and superoxide dismutase, on the photosynthetic water oxidation by the tyrosyl radical-manganese complex in photosystem II are reported.

With nearly 2400 references to assist further research, this book is an essential resource for scientists and students in many disciplines, including bioinorganic, inorganic, and coordination chemistry, bio-chemistry and -physics, molecular biology, enzymology, pharmacology, physiology, clinical chemistry, nutrition,toxicology, and environmental sciences.

This book should facilitate the entry into and stimulate further research on the fascinating role of manganese in biological systems.