

METHODS IN MOLECULAR BIOLOGY

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Metalloproteins

Methods and Protocols

Edited by

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Preface

Complex metalloproteins catalyze some of the most remarkable chemical transformations in biological systems. Many of the reactions catalyzed by these enzymes involve small molecules, such as N_2 , CO , and H_2 , which are used to generate chemical building blocks and energy for metabolic purposes. Despite intense efforts in this research area, the mechanisms and biosynthesis of many of these complex metalloproteins are still poorly defined and represent substantial and continuing challenges to biochemists, biophysicists, and synthetic chemists. This volume attempts to provide an up-to-date, in-depth overview of the methods that have been applied to studying the complex metalloproteins at a molecular level. A large ensemble of approaches is covered in this volume, ranging from genetic, biochemical, spectroscopic, and chemical methods to theoretical calculations. A project of this scope requires the timely cooperation of many participants and I greatly appreciate the willingness of all authors to face and meet such a challenge. I hope that this volume, written by recognized experts in this research area, will be useful for anyone who is interested in metalloprotein research and who is willing to take charge of addressing the unanswered mechanistic and biosynthetic questions of these fascinating enzyme systems.

Irvine, CA, USA

Yilin Hu

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