

Preface

Chemical biology is a cross-disciplinary science at the interface of chemistry, biology, and medicine. It may be viewed as subsuming important aspects of the traditional disciplines of bioorganic chemistry, bioinorganic chemistry, medicinal chemistry, biophysical chemistry, and biochemistry, with a special emphasis on rigorous application of the principles, tools, and language of chemistry to important topics in biology. Chemical biology aims at the elucidation of the chemical mechanisms of living systems and is the fundamental science of drug discovery, playing a key role in the development of novel agents for the prevention, diagnosis, and treatment of disease. Research in chemical biology is therefore of huge commercial importance because of its central role in drug discovery and design; this discipline is the scientific engine of a pharmaceutical market that is currently worth hundreds of billions of dollars per annum.

To best serve the needs of this cross-disciplinary field, the *Wiley Encyclopedia of Chemical Biology* is designed to present information to students and researchers of varying backgrounds and levels of experience. Three article types have been included, each targeted towards a different level of readership. Overview articles are written at a level suitable for students or scientists entering the field, and may serve as teaching materials for undergraduates. Advanced articles will be read by advanced students and researchers looking for an authoritative review of a topic in the field. Case studies cover topics that demonstrate the use of chemical biology concepts and methods to address specific questions in biology. All articles are written by

prominent scholars from academia, research institutions, and industry, carefully selected by the Encyclopedia's distinguished advisory board. Together, their contributions provide an unparalleled resource for authoritative, up-to-date, and accurate information in the field of chemical biology.

The scope of the Encyclopedia is broad and highly interdisciplinary. It brings together information on the chemistry and biology of biomolecules, cellular compartments, biological processes and systems, as well as the methods, technologies and techniques that are important for chemical biology research, and applications of this research. The reader is encouraged to explore the interconnectivity of topics, concepts, and methods in this field.

The *Wiley Encyclopedia of Chemical Biology* has been made possible by the hard work of hundreds of individuals, including contributors, reviewers and advisors, who dedicated their precious time and expertise to this publication. We wish to acknowledge and thank all those who took part in this important project.

TADHG BEGLEY
Chief Advisor

NATANYA CIVJAN
Editor

SEAN PIDGEON
Vice President and Publisher