current innovations at the research forefronts of bacterial polysaccharides; and in the mean time, they can learn the different state-of-the-art technologies that were used to prove scientific hypothesis.

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Chemical Biology: Learning through Case Studies

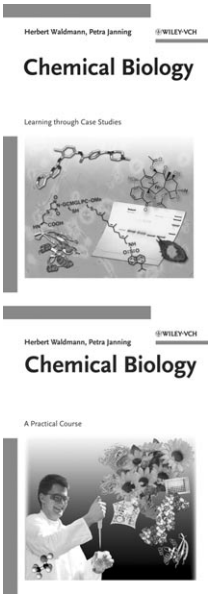
By *Herbert Waldmann* and *Petra Janning*.

Wiley-VCH, Weinheim 2009, 294 pp., softcover € 39.90.—ISBN 978-3-527-32330-2

Chemical Biology: A Practical Course

By *Herbert Waldmann* and *Petra Janning*.

Wiley-VCH, Weinheim 2004, 230 pp., softcover € 39.90.—ISBN 978-3-527-30778-4



What is Chemical Biology? The answer to this question remains to be shaped, defined and redefined by those working in the field. Its scope is partly defined by the content and topics chosen for inclusion in the diverse collection of journals, conferences, graduate programs and university courses that bear the "Chemical Biology" moniker but, ultimately, it is those who self-identify as chemical biologists who will have the final word. In that context, a pair of student-oriented textbooks edited by Waldmann and Janning mark an important milestone. *Chemical Biology: A Practical Course*, is a series of practical laboratory experiments intended for upper-level undergraduates or graduate students.

The book begins with a broad overview by the editors, which outlines their personal thoughts on the definition of Chemical Biology. Because their readership comprises impressionable young scientists, they should be particularly applauded for their clear and concise phrasing and their willingness to point out the evolving nature of the field. Following the introductory section, the next twelve chapters each cover a topic under the general heading of Chemical Biology. These subjects include a range of areas, including synthesis and application of peptide nucleic acids (PNAs), in silico protein ligand design, proteomic analysis and solid-phase synthesis of antibiotics. Each chapter begins with a brief summation of the field that is intended to provide context for understanding the subsequent experiment. The depth of background is necessarily brief, and experts might be disappointed by the relatively short space devoted to their favorite topics, but these sections are clearly meant to provide a framework for future reading. Following the introductory material, protocols are given for implementing the experiment and these protocols are sufficiently general to be adapted and customized for various manufacturer's instruments. The sheer breadth of topics is impressive; the book touches on aspects of organic synthesis, molecular biology, computational biology, signal transduction, enzyme kinetics, genomics, proteomics and drug design. Despite this scope, the methods are uniformly written in a straightforward style, regardless of whether the experiment involves synthesis or protein purification or other far-flung methodologies. The editor's colleagues are largely responsible for the book's content, and this approach provides a satisfying coherence.

On a practical note, because the previous training of students will likely be diverse, certain sections might require supplementary source material (primary manuscripts, additional reviews, more detailed protocols, etc.). For example, 5′ and 3′ are used in the section on DNA hybridization without formal introduction of the nucleic acid structure, which might cause trouble for introductory students lacking a strong molecular biology background. However, the text's main accomplishment is to capture the topics that encompass "Chemical Biology" and, in this task, it is remarkably successful. Moreover, guided by these logical templates, it is easy to imagine how a researcher could add custom modules inspired by their own interests.

The companion text, *Chemical Biology: Learning through Case Studies*, is designed as a supporting text for courses populated by upper-level undergraduate or graduate students. As with the laboratory course, each chapter starts with an introduction to the biological problem, followed by a review of the chemical methodology and then a summary of specific literature examples. The general topics include chemical genomics, synthesis of chemical libraries, target identification, protein–protein interactions, affinity-based profiling, native chemical ligation, protein semisynthesis and other modern areas of chemical biology. The emphasis is not necessarily on primary data; rather, the chapters are a guide to the broader literature. This approach works well because it reduces the jargon and, more importantly, it lets the excitement of the field become the centerpiece. Towards that goal, "breakout" boxes are included to serve as a brief refresher of major concepts. Similarly, the glossary in the front of the book comes in handy when the reader needs a quick reminder of the definition of ABPP or HBTU. No discussion questions, teaching guides or multimedia visuals are included, so educators might want to supplement with web-based teaching tools and demonstrations geared towards the specific background of their student pool.

Given the challenging task of covering an enormous and diverse set of topics, Waldmann and Janning have done an excellent job of providing practical information, while also capturing the excitement and potential of Chemical Biology. For those developing educational curricula around this challenging subject, these books are likely to provide an invaluable framework and useful resource.

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