Book Reviews

Cell Cycle-Materials and Methods; Edited by M. Pagano, Springer, Hedelberg, New York, 1995; xvi + 285 pp. DM 128.00 (pb.). ISBN 3-540-58066-2.

Michael Pagano has edited an exceptionally effective volume on experimental approaches for investigating cell cycle and growth control. The field has expanded significantly during the past several years providing valuable insight into cell cycle regulatory mechanisms and identification as well as characterization of the regulatory factors. Advances in molecular, biochemical and cellular technologies have significantly facilitated increments in our understanding of proliferation. Consequently, there is a requirement for access to broad based experimental approaches for pursuit of regulatory mechanisms supporting competency for proliferation and cell cycle progression.

This book has encapsulated the key components of experimental approaches required for pursuing fundamental cell cycle regulatory parameters and translating observations to clinically relevant problems. The introductory chapters on cell cycle terminology from an historical perspective provide valuable insight into components of growth control that are operative in eukaryotic cells. The bibliography which accompanies this chapter is balanced and a valid resource for documentation of valued contributions to cell cycle control. Each of the chapters presents state-of-the-art approaches with sufficient attention to experimental detail. The selection of authors is appropriately matched with expertise and contributions in key areas of growth control. This is reflected by the knowledgeable and lucid manner in which paradigms for resolution of complex biological relationships are described.

Organization of the volume is a significant strength. The phylogenetic presentation supports an understanding of the required subtleties for experimentally pursuing cell cycle regulatory parameters in organisms ranging from yeast to mammals. Care was taken by all authors to explain, in a clear and concise manner, the requisite modifications of general protocols to accommodate specific biological conditions. A principal advantage of this book is inclusion of protocols for nucleic acid and protein-based methodologies. Here, the techniques are linked with pursuit of cell cycle regulatory parameters rather than as isolated biochemical or molecular approaches.

'Cell Cycle-Materials and Methods' is a valuable desk reference for scientists and students. While several other books describing protocols for investigation of growth control have revently been published, this is among the most viable.

Gary S. Stein

Protein Stability and Folding: Theory and Practice. In the series *Methods in Molecular Biology* (Vol. 40). Edited by Bret A. Shirley. Humana Press, Totowa, NJ, USA, 1995; x + 377 pp. $69.50 (pb). ISBN 0-89603-301-5.

This book is intended for the comparative beginner in protein physicochemistry. It contains sixteen stand-alone chapters which differ widely in breadth, depth and length, and which are presented in apparently random order with no continuity and very little cross-referencing. This bittiness gives a rather disjointed result, and raises a problem: a non-expert who uses this book as an introduction will gain only little perspective from it, while someone who already has the necessary perspective to use the book will probably be familiar with many of the subjects with which it deals.

The choice of chapter topics does justice to the subtitle 'Theory and Practice'. The more theoretical chapters cover non-covalent forces important in proteins' conformational stability, disulphide bonds, the 'molten globule' model, kinetics of folding, and stabilisation by solvents. While the emphasis of these chapters is on theory, the theory is generally well illustrated by experimental results, and the reader wishing for more detail will find adequate reference to reviews and original articles. The reviewer felt the chapters on non-covalent forces and disulphide bonds to be the most satisfactory; that on solvent stabilisation is also excellent, but the topic is of less general interest. The chapter on the kinetics of protein folding suffered from the weakness that this subject is very broad and not so well understood; the account of the molten globule is wordy and lacks the conciseness of the other chapters.

Five spectroscopic techniques are covered: ultra-violet absorption, fluorescence, infra-red, circular dichroism and nuclear magnetic resonance applied to hydrogen-deuterium exchange. The UV chapter provides a balanced introduction and description, including practical advice. The fluorescence and IR chapters require prior understanding of these methods; they summarise what can be done without very much explanation of how, while the CD chapter is rather autobiographical. The H/D-NMR chapter also requires prior knowledge of NMR; its application is well explained and some typical practical protocols are included.

Further chapters include accounts of degradative reactions (this cautionary chapter should be read by everyone learning to work at the bench with proteins); of locating post-translational modifications by peptide mapping (a practical chapter that includes many protocols), denaturation by urea and guanidine hydrochloride (with detailed practical instructions). On the down side, the contribution on site-directed folding mutants of subtilisin is really just a review of the contributor's own work, while the chapter on chaperone-assisted folding turns out to be no more than a laboratory-class manual for 3rd.-year undergraduates, that is, ones who have supplies of GroEL and GroES on hand. Finally, a chapter on differential scanning calorimetry merits special commendation as a condensed and thorough but still highly readable introduction to this technique as applied to protein denaturation (but check your basic thermodynamics before tackling it).

In spite of its unevenness, this book contains enough good material to be a recommended purchase for libraries frequented by undergraduate and post-graduate students of biochemistry.

Two questions might be put to the publisher of *Protein Stability and Folding*. (1) This book is not a laboratory manual and therefore does not need to lie flat on the bench. So why put it in a plastic ring-binding, making the pages irritatingly hard to turn? (2) The jacket notes claim that '[this book] will ensure a significant difference in the outcome of your experiments, producing the result desired even for beginners'. Has academic advertising really sunk so far?

Paul Woolley

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