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Book Reviews

Protein Biotechnology: Isolation, Characterisation and Stabilization; edited by Felix Franks, Humana Press; Totowa, New Jersey, 1993; ix + 592 pages. $89.50. ISBN 0-89603-03230-2

This book of fifteen chapters offers a fine pot-pourri of structural, preparative and analytical information for the protein chemist. While part of the book covers material that one would traditionally expect from a book of this title, other parts offer a refreshingly new insight into certain areas, in particular in relation to the physical chemistry of proteins. The book opens with a chapter on the nature and function of proteins and is followed by a chapter which explains the industrial/commercial importance of proteins and also introduces the subject of process purification. Having therefore 'set the scene', chapters follow on fairly predictable, but necessary, subjects such as chromatographic methods, monoclonal and polyclonal antibodies, process purification, protein processing, electrophoretic techniques, protein structure and protein sequence determination. All these fairly traditional areas are suitably covered; the section on sequence determination is particularly recommended, although I felt the process purification section could have been covered in more depth. A chapter on recombinant protein technology brings the reader very much up to date with modern approaches to protein production and purification. So far, this would have produced a fairly traditional, readable volume on protein biotechnology. The additional chapters on physical chemistry aspects of proteins should therefore be considered a bonus. This aspect is not so frequently covered in texts of this type and therefore chapters on solution properties, conformational stability, protein hydration and storage stability of proteins are most welcome. If I have a criticism it is that I would order the chapters more logically. However, reading this book was an enjoyable meander through various aspects of the structure, purification and characterisation of proteins. Who is the book aimed at? The editor does not identify his audience in his preface, but there is much here that will update the established protein chemist. In addition I would be happy to recommend a number of these chapters to undergraduates new to protein chemistry in the hope that as their interests develop in this field they will be encouraged to read the more advanced chapters.

John M. Walker

Recombinant DNA parts G and H (Methods in Enzymology vols. 216 and 217); edited by: R. Wu, Academic press; San Diego, 1993; part G: xxix + 689 pages. £66.00, $90.00. ISBN 0-12-182117-x; part H: xxix + 724 pages. £66.00, $90.00. ISBN 0-12-182118-8.

As outlined in the preface of these two volumes, the editor alludes to the revolutionary recombinant DNA techniques that have been introduced over the last 10–15 years. Using these techniques we are now able to identify single genes from a large pool, locate controlling regions and re-introduce genes into a wide range of cells by transformation. Consequently a greater understanding of complex biological problems can now be obtained at the molecular level.

The two volumes under review conform to the same format as previous volumes of Methods in Enzymology. This includes a general introduction to each of the chapters, a short paragraph on the principle of the method and an extensive materials and methods section. Equally important is the inclusion in the concluding remarks of a 'discussion of problems'. This is a commendable inclusion in any methodology text as it is often small modifications to procedures that are the most important factor in obtaining a successful outcome to an experimental procedure. The volumes under review (216 and 217) are intended as a supplement to the earlier volumes in Methods in Enzymology 153, 154 and 155. The limitations on space have meant the editor has had to be extremely selective in the methodology chosen. On the whole I think he has chosen an appropriate selection of techniques all of which are well described and adequately referenced. Topics covered include isolation and detection of DNA and RNA, PCR amplification of RNA transcripts, DNA detection using chemiluminescence, affinity capture for selective enrichment of DNA etc. Often new or modified recombinant DNA techniques arise which have significant advantages over well established procedures. These advantages may include a saving on time and costly reagents. Consequently, I think the inclusion of a chapter on the isolation and detection of DNA and RNA is justifiable. Another very useful chapter in vol. 216 describes extensively the use of reporter genes. These genes are used widely to identify and functionally dissect *cis* and *trans*-acting sequences that regulate eukaryotic gene expression in vitro.

There is clearly a premium on space in these volumes consequently it is unfortunate that descriptions of some methods have been duplicated in the two volumes i.e. chemiluminescent detection of DNA in vol. 216 and vol. 217 section III.

In general vol. 217, like 216, is concisely written and contains extremely useful, descriptive chapters on expression vectors for use in both plants and animals. Linked to this is Section IV which provides a comprehensive description of current methods of transforming plant and animal cells. A chapter which should be of interest to all molecular biologists who attempt to assign a biological function to any cloned

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edited by Felix Franks, Humana Press; Totowa, New Jersey, 1993; ix + 592 pages. $89.50. ISBN o-89603-03230-2. This book of fifteen chapters offers a fine pot-pourri of structural, preparative and analytical information for the protein chemist. While part of the book covers material that one would traditionally expect from a book of this title, other parts offer a refreshingly new insight into certain areas, in particular in relation to the physical chemistry of proteins. The book opens with a chapter on the nature and function of proteins and is followed by a chapter which explains the industr Humana Press, Totowa, New Jersey. 0 1993 The Humana Press Inc 999 Rivervrew Drive, Suite 208 Totowa, New Jersey 07512 All rights reserved No part of this book may be reproduced, stored in a retrieval system, or transmrtted In any form or by any means, electronic, mechanical, photocopying, microfilming, recording, or otherwise without written permission from the Publrsher.Â Main entry under title: Protein biotechnology : isolation, characterization, and stabilization / edited by Fekx Franks. p. cm - (Brologcal methods) Includes Index. ISBN o-89603-230-2 1. Proteins-Biotechnology. I Franks, Felix II.Â Felix Franks 1. Chemical Constitution Proteins are linear condensation polymers of amino acids and are formed by the reaction H,N . CHR,. Cooh + h,n . chr VTT BIOTECHNOLOGY. Introduction to protein production. â€¢ Proteins may be intracellular or extracellular â€¢ Intracellular proteins may be produced intracellularly or directed out. of the cell by adding a signal sequence or by construction of a fusion protein with an extracellular protein. â€¢ In bacteria, proteins may end in the periplasmic space => formation. of inclusion bodies. â€¢ Production may be enhanced by the use of fusion protein strategies. (+introduction of specific protease sites for cutting of partners later). â€¢ PCR has made it much easier to make the constructions needed.Â e.g. use of protease defective mutants or by changing the sequence of the protein. VTT BIOTECHNOLOGY. Posttranslational modifications. Read "Protein Biotechnology Isolation, Characterization, and Stabilization" by Felix Franks available from Rakuten Kobo. Proteins are the servants of life. They occur in all com-nent parts of living organisms and are staggering in their fuÂ Even the simplest single-cell organism contains a thousand different p-teins, fulfilling a wide range of life-supporting roles. Additions to the total number of known proteins are being made on an increasing scale through the discovery of mutant strains or their production by genetic manipulation. The total international protein literature could fill a medi- sized building and is growing at an ever-increasing rate. The reader might be forgiven for asking whether yet another book on proteins, their properties, and functions can serve a useful purpose. Humana Press Totowa, New Jersey. M E t h o D s I n M o L e C u L a r b I o L o g yâ„¢. Edited by.Â clients, is granted by Humana Press Inc., provided that the base fee of US $10.00 per copy, plus US $00.25. per page, is paid directly to the Copyright Clearance Center at 222 Rosewood Drive, Danvers, MA 01923. For those organizations that have been granted a photocopy license from the CCC, a separate system of. payment has been arranged and is acceptable to Humana Press Inc. The fee code for users of the Transactional. Reporting Service is: [0-89603-682-0/01 $10.00 + $00.25]. Printed in the United States of America.Â In 1995, Humana Press published a book edited by Dr. Bret A. Shirley. entitled Protein Stability and Folding: Theory and Practice. This book detailed.