

Book Review

Fundamentals of Protein Biotechnology. Edited by Stanley Stein. Marcel Dekker, Inc., New York, Basal, Hong Kong, 1990, xiv+310 pp. 235 × 160 cm, ISBN 0-8247-8346-8, \$99.75.

The book is a timely publication. It contains twelve chapters each written by quite competent authors mostly belonging to biotechnology industry. At the outset, it briefly describes the landmarks in the advancement of the protein-peptide chemistry specifically isolation, purification and sequencing (Chap. 1). The myriad roles played by proteins along with their mechanisms of action have been presented very systematically (Chap. 5). Since the functional/biological activity of a protein resides in its own unique three-dimensional structure, there is quite an elaborate description of various structures of proteins, forces and interactions among various groups within molecule (Chap. 2). How the genetic code residing in DNA is transcribed and translated into protein followed by post-translational modifications have been well covered (Chap. 3). The protein biosynthesis is followed by the chemical synthesis—both solution- and solid-phase syntheses—in quite a great detail. The methods for the biological synthesis of peptides and proteins have also been briefly highlighted. What purification and characterization protocols should be followed after such syntheses have been discussed in Chap. 10, though other three chapters, viz., Chapters 4, 6 and 7 are entirely devoted to isolation/purification by various methodologies with examples of commercial products (interferons and opioid peptides). Since isolation/purification is crucial to the study of any protein, the “purification” chapters may incorporate latest developments in High Performance Electrophoresis Chromatography (HPEC), High Throughput Capillary Electrophoresis (HTCE), Counter Current Chromatography (CCC) and Centrifugal Partition Chromatography (CPC), besides others

in its future editions. A separate Chap. 9 deals with structural characterization of proteins by discussing the automated Edman Degradation (amino acid sequencing) and the Mass Spectrometry. Recent developments in tumor-peptide antigens (*Nature*, 369, 357–358, 1994 and *Science*, 264, 716–719, 1994) and synthesis of reverse-D CD4 analogs (*Nature*, 368, 744–746, 1994) supplement the importance of structural organization and purification strategies in protein biotechnology. The principles and considerations of the recombinant DNA technology have been explicitly presented with examples of the production of the human leukocyte interferon (Chap. 11) and human calcitonin (Chap. 8). The concept and practices of monoclonal antibody technology and recent advances in this area are covered at a good length in Chap. 12.

Though the book covers most aspects of protein biotechnology in twelve well referenced and illustrated chapters, it could have benefited from streamlining and proper synthesis, to avoid overlapping and repetitive contents and citations. Each chapter is written in its own style, Chapters 5 and 11 being well organized. More explanation of the principles, procedures, reactions and mechanisms would be useful. The Index at the end of the book is satisfactory; however, one would expect such a book be free from syntax and typographical errors. The book can serve as a useful reference for protein biotechnology to pharmaceutical scientists and related individuals.

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