Bioseparation and Bioprocessing Vol. 1: Biochromatography, Membrane Separations, Modeling, Validation

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Volume I: Biochromatography, Membrane Separations, Modeling, Validation

Edited by
G. Subramanian

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Cover illustration: Three-dimensional model of human choriogonadotropin. The model is based on the crystal structure of deglycosylated hCG[9] (PDB code 1hrp). The protein part of the molecule (ribbon) and the four N-linked carbohydrate chains (spheres) are shown on the same scale. The oligosaccharides are attached to Asn52 (top, right) and Asn78 (bottom) of the α-subunit (green), and to Asn13 and 30 (top, left) of the β-subunit (blue). The binding region is indicated in red. It should be noted that the spatial orientation of the carbohydrate chains is arbitrarily set as they are not present in the crystal structure. The carboxy-terminal peptide of the β-subunit (amino acid residues 131–145) is not depicted because its 3D-structure could not be deduced from the crystal [Figure reproduced by courtesy of Prof. Dr. P. D. J. Grootenhuis (Dept. of Computational Medicinal Chemistry, N.V. Organon, Oss)]. See also Volume II, Chapter 5.

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Edited by G. Subramanian
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Process Scale Liquid Chromatography
Edited by G. Subramanian
1994, XVI, 225 pp., hardcover, VCH, ISBN 3-527-28672-1

Preface

Biotechnology represents the confluence of several disciplines. The European Federation of Biotechnology has defined biotechnology as an integrated use of biochemistry, microbiology and chemical engineering in order to achieve the technological (industrial) application of the capacities of microbes and cultured cells. Thus, to produce purified biologically active components really depends on the effective separation process. Within this versatile area of separation it would be incorrect to claim that this book covers the entire field of separation technology comprehensively; it does not; nor is it intended to be used as a textbook for a specific course. This book is intended to project an overview on selected techniques that are actively applied in the biotechnology industries.

Volume 1 of *Bioseparation and Bioprocessing* is organised into four parts containing seventeen chapters contributed by experienced scientists. The nine chapters in part one gives an overview of different chromatographic methods that are applied in the bioseparation. Membrane technology and its application in the separation of bioactive components are addressed in chapters 10, 11 and 12 (part two). Part three consisting of chapters 13, 14 and 15 deals with modelling aspects as applied in the product separation in the biotechnology, and finally part four deals with validations as applied chromatographic process (chapter 16) and for virus removal is described in the last chapter.

It is my hope that this volume will bring together accumulated knowledge in a way which will promote the advancement of separation technology, which will continue to grow and develop on the basis of fascinating discoveries in the control and separation of biomolecules to create technologies that are useful to society.

I gratefully acknowledge the authors for their time and motivation in preparing their contributions, without which this volume would not have been possible. I should be most grateful for any suggestions which could serve to improve future editions of this book.

Finally I would like to thank the staff of WILEY-VCH for their help.

Canterbury, Kent
January 1998

G. Subramanian.

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