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Book reviews

Pharmaceutical Formulation Development of Peptides and Proteins

Sven Frokjaer, Lars Hovgaard, Taylor & Francis, Andover, UK, 2000, 238 pages, ISBN 0-748-40745-6

The publishers Taylor & Francis have a good reputation for producing high quality, well-bound books. This volume keeps up this excellent standard, and contains a number of well written, informative chapters on the formulation development of peptides and proteins. Its scope is not comprehensive, there being for example no consideration of either freeze- or spray-drying of proteins. It focuses rather on general pharmaceutical development aspects of peptides and proteins, rather than on the design of advanced drug delivery systems. The editors stress that in pharmaceutical formulation it is important to have basic knowledge of related disciplines, such as peptide synthesis, recombinant DNA technology and protein purification technology. This slant makes the book very useful as a course text for pharmaceutical students and also as a reference book for scientists involved in peptide and protein formulation. The scientific level of the book is, seriously speaking, only that of advanced undergraduates, or of graduate students new to the subject.

The first three chapters deal with peptide synthesis, the basics of recombinant DNA technology, and protein purification. Chapter 4 provides an overview of analytical methods used for characterizing both chemically and physically peptides and proteins. Chapter 5 addresses the most prevalent chemical pathways for degradation of peptides and proteins observed during production and storage. The physical stability of proteins is covered in Chapter 6. Chapters 7–11 then discuss various formulation principles for peptides and proteins. The formulation of parenteral suspensions is the topical Chapter 7, providing ideas and principles for the development of such systems. In Chapter 8, the emphasis is on the approaches used to formulate solutions of peptides and proteins. Problems related to protein confirmation and stability in the solid state are discussed in Chapter 9. Chapter 10 presents some non-parenteral routes of administration for peptides and proteins, but is rather superficial. Chapter 11 discusses peptide and protein derivatives, and the book concludes with Chapter 12 concerning documentation during pharmaceutical development.

Although most of the chapters in this book are not of research standard the book does give a readable, consultable overview of peptide and protein formulation. It is the sought of work that one consults often to find answers to day-to-day problems of working with proteins. I specially like the practice oriented chapters on parenteral suspensions and solutions. A couple of chapters are truly of research standard, most especially Carpenter's et al. description of protein confirmation in glassy carriers. However, in general this is more a useful text for an advanced undergraduate course on peptide and protein drugs.

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Controlled Release Dosage Form Design

C.-Ju Kim, Technomic Publishers, Hitchin, Herts, UK, 2000, 301 pages, ISBN 1-56676-810-1

As this book has no preface, it is difficult to judge the author's reasons for writing it. This book gives a detailed description of the physical–chemical principles of drug release from dosage forms. This information is, however, already available in a number of other excellent volumes. Kim includes many details of the mathematical pathways used to solve the diffusion equation for particular problems. I think that this approach tends to bias the reader towards analytical techniques, instead of stressing, for example, the more vital importance of numerical methods. However, the book also contains many practical, descriptive examples of release system design from the literature. This tends to counterbalance the, in part, superfluous mathematics.

The chapters follow the classical classification of controlled release systems. Thus we find descriptions of monolithic matrix systems, membrane-controlled systems, swelling-controlled systems, erosion-controlled systems, ion exchange systems, gradient matrix systems, osmotically-controlled systems, and geometrically-modified systems. In each section there is a detailed discussion of the applicable analytical solution to a particular dosage form design. To exploit this book at best, therefore, one needs to be acquainted in some detail with partial differential equations. If one can cope with this, then the book is

certainly a good reference. I also just wish that Kim had written a preface to explain his intentions with this volume, although I consider such pure analysis to be backward-looking. The future will surely be determined by numerical methods.

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