

Book reviews

Protein Formulation and Delivery

Eugene McNally (editor). *Drugs and the Pharmaceutical Sciences*, Vol. 99, Marcel Dekker, New York, 2000, pp. 262, \$150.00, ISBN 0-8247-7883-9

Some of the most interesting current research in drug delivery involves the pharmaceutical technology and biopharmaceutics of peptides and proteins. The two basic problems are to produce a stable product, and to ensure adequate bioavailability and duration of therapeutic activity of the biological. Despite the relative newness of this field of research, there has been a number of good books on the subject appearing in the last few years. According to the editor, the current book was written to assist pharmaceutical scientists with the first of the above mentioned problems, i.e. the development of stable protein formulations when only a small amount of drug substance is available. It is, therefore, strongly industrially oriented, as a glance through the list of contributors will show. This is no criticism, since some of the best formulation research on peptides and proteins has been performed in industry. In this book, however, the chapters are of somewhat varying quality. Bummer and Koppenol's review of the chemical and physical stability of peptides and proteins is excellent and quite comprehensive. There are many chapters in recent books with this title, but I consider this to be the best. Similarly, the following chapter dealing with analytical methods is comprehensive, with the suitability of each technique being clearly explained. This certainly helps the newcomer understand what is being measured by which technique. The discussion of pre-formulation in Chapter 4 is, by its very nature, somewhat superficial, but will be of interest to the industrial pharmacist. Chapter 5 describes solution formulation of peptides and proteins and is strongly based on an analysis of products out of the PDA. But it is useful for selecting necessary adjuvants for a solution formulation, if one is lucky enough to be in this situation. The following chapter on freeze-drying is the weakest in the book. The author succeeds, for example, in avoiding mention of either T_g' or freeze concentration, both of which I would have thought were vital considerations when freeze-drying proteins. The next chapter on formulations of proteins for pulmonary delivery gives a good overview of the subject, although at a superficial level. It describes liquid formulations and powder

formulations for aerosol delivery. It certainly summarises the available devices and strategies for formulation, but leaves much of the interesting science out. The book's last chapter is entitled 'Formulation of Proteins for Incorporation into Drug Delivery Systems'. I am not certain what the author wants to say, but the chapter appears to be about the sustained release of proteins. This is rather superficial and can at best serve as a brief introduction to the subject. This book is then only of limited use for pharmaceutical scientists working with peptides and proteins.

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Modern Characterization Methods of Surfactant Systems

B.P. Binks (editor), Marcel Dekker Surfactant Science Series, Marcel Dekker, New York, pp. 601, ISBN 0-8247-1978-6

For many years the study of surfactants brought to mind classical devices such as Langmuir troughs and Wilhelmy plates, and in the minds of many people (and some university courses) that is where it has stayed. However, physical chemistry underwent a renaissance with the introduction of instrumental techniques such as transient spectroscopy, radiation scattering and other dynamic optical methods, and more recently with scanning probe microscopies. These areas have seen wide application to surfactant and interfacial studies, and the present book is well-timed to review this work.

The title of the book is a little misleading since it concentrates largely on the behaviour of surfactants at interfaces, with rather less information on bulk and solution studies. There is, for example, an extensive chapter on surface neutron reflectivity, but little or nothing on small-angle neutron scattering. Following a brief introduction the book is broken into three main areas: techniques involving microscopy, optical techniques, and non-optical techniques.

Microscopy obviously includes probe microscopy (there are chapters on AFM and STM), as well as Brewster angle