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## Book review

### *Antigen Delivery Systems: Immunological and Technological Issues.*

Bruno Gander, Hans P. Merkle, Giampietro Corradin (Eds), Harwood Academic Publishers

Chapters 1–3 discuss the limitations and advantages of controlled release systems for vaccination, along with the mechanisms involved in antigen presentation. Chapters 4 and 5 provide an overview of the various delivery systems used and experimental immunopotentiators being researched. The uses and restrictions of the systems are discussed and, from a development perspective, there would appear to be considerable effort required before some of these candidates reach man!

The following three chapters provide details on two of the most researched delivery systems: liposomes and ISCOMS. Strong supporting information on the ongoing development of liposomes is provided together with evidence for the strong antigen presenting capabilities of ISCOMS.

Chapter 9 largely provides an overview of nanoparticle formulation technologies, preferred biodegradable polymers and methods to obtain reasonable product loading. While delivery of nanoparticles for vaccine use is explained, no immunological data are discussed (sources are available). This omission detracts from the chapter, as does the absence of some editorial care.

The authors of Chapter 10 have taken a refreshing attitude in considering the developmental issues of producing microparticulate products. The authors provide an excellent overview of common microencapsulation methods and then hypothesise on the vaccine release pattern(s) required for optimal immunity. Chapter 11 starts with a discussion of the relative merits of continuous-release microparticle systems vs pulsatile systems. Also provided is a summary of cellular immune responses to microparticulate vaccination. Chapter 12 deals with mucosal immunity to microparticulate vaccines and dovetails with Chapter 11.

Chapter 13 provides an authoritative end to the book. The various safety checks for vaccines and delivery systems are discussed in detail. For readers in industry, the sections on quality control are a useful treatment of an often overlooked subject.

The book provides an overview of the immunology, adjuvant activity and engineering of antigen delivery systems, and is a useful text for postgraduates and established workers in the vaccine field.

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