Therapeutics of All Kinds

DNA Pharmaceuticals: Formulation and Delivery in Gene Therapy, DNA Vaccination and Immunotherapy

Edited by *Martin Schleef*.

Wiley-VCH, Weinheim 2005. xxii+253 pp., hardcover € 99.00.—ISBN 3-527-31187-4

As suggested by the subtitle, this book offers a fairly broad conspectus of what the Editor sees as a "completely new class of active pharmaceutical ingredients" involving the use of genetic material "for a preventive or curative application". It is conceived as the natural follow-up to Dr. Schleef's "Plasmids for therapy and vaccination" (Wiley-VCH, 2001), and is intended to take the reader "into the next step after design and manufacturing of plasmid DNA pharmaceuticals." We are told that "The focus is on the route of administration, quality control and regulatory aspects."

At this point the reader might be excused for thinking that this is a text aimed at scientist–entrepreneurs, involved in, starting up—or thinking about starting up—a new company in this area. And such specialists will indeed find the first few chapters valuable, particularly Chapter 2 on Regulatory Aspects and Chapter 3 on Plasmid Manufacturing and Storage. However, committed bench scientists, and the general reader, will be looking for a broader perspective. The good news is that they will not be disappointed. Most of the 13 chapters are written by practising academic scientists, and most offer a useful overview of a practical topic that most prospective readers will have heard of but few will have used themselves.

Chapter lengths vary widely with the subject matter, from just a handful up to 38 pages: so these are overviews rather than comprehensive reviews. However, the chapters are generally well-referenced: I looked first at the longest, Chapter 5, a well-written discussion with 324 references (into 2005) of "selected methods for localized nucleic acid delivery". This is a collaborative contribution from the Munich Technical University (Christian Plank and Franz Scherer, Department of Experimental Oncology) and the Children's Hospital of the Ludwig-Maximilian's University (Carsten Rudolph). The topics are well-chosen and well-organised, offering concise, practical, expert overviews of all the areas an interested reader might be looking for; plus several more that he might not be, but which might open a "serendipity channel". Anyone with a general interest in the area will appreciate the (two-page) introduction to nucleic acid delivery; the excellent, similarly brief summary of endocytosis and endosomal escape; and such authoritative, informative judgements as "It is still not well understood how and in what form nonviral vectors gain access to the nucleus." As might be expected, this particular topic is expanded later in the chapter, in well-informed discussions of localization and targeting (terms that are used synonymously). The chapter ends by introducing various physical methods of gene delivery (most of which are expanded upon in later chapters), with the pertinent reminder that drug–cell contact is typically driven by the physical process of diffusion, no matter how sophisticated the targeting apparatus.

The book's general emphasis, which may reasonably be seen as forward-looking, is on nonviral systems for DNA delivery into cells. When no delivery system is perfect, then simplicity becomes an important factor, and currently some 15% of gene-therapy trials involve naked DNA gene transfer. Thus "DNA vaccination" is a major topic, with separate chapters on Needle and Needleless Injection. The second longest chapter is a well-informed discussion of electrotransfection, followed by a chapter on its clinical applications. Hydrodynamic gene therapy is discussed briefly (in terms guaranteed to put off potential patients permanently). Other chapters deal with more specialized topics, some of which will be familiar, particularly those covering plasmid inhalation and treatment of skin diseases, where delivery is (superficially…) more straightforward and research correspondingly further advanced.

Technically the book is produced to the high standards we expect from this publisher. The format will be familiar to many readers, from the detailed lists of chapter contents and authors' affiliations and the (ever more essential) Table of Abbreviations, to the good 12-page index at the end. It makes a valuable contribution to an important, topical and rapidly growing area of research and will be useful and of interest to students and professors, specialists and beginners in the field. I recommend it strongly, to libraries and individual researchers, in areas ranging all the way from biological chemistry to medicine.

Anthony Kirby
University of Cambridge (UK)
DOI: 10.1002/cmdc.200600023

Methods in Molecular Biology, Vol. 316: Bioinformatics and Drug Discovery

Edited by *Richard S. Larson*.

Humana Press, Totowa 2006. x+444 pp., hardcover $ 125.00.00.—ISBN 1-58829-346-7

It is almost impossible to begin this review without immediately pointing out that the title of this book inadequately describes the contents. About half of the chapters fit comfortably within the