# BOOK REVIEWS

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*Gene Therapy Protocols*. Edited by Paul D. Robbins. Totowa, NJ: Humana Press, Inc., 1996. Pp. 432. $110.00 (cloth); $74.50 (paper).

*Gene Therapy Protocols,* a volume in the series *Methods in Molecular Medicine,* is intended to provide scientists with detailed methods to allow them to perform gene-transfer and gene-therapy techniques. It is loosely divided into several thematic sections: the first gives details on how to generate different gene-therapy constructs, including DNA-based as well as recombinant viral vectors. A heavy emphasis is placed on retroviral vectors, with several chapters each on adenoviruses and DNA-liposome complexes. Other, individual chapters describe viral vectors—including adeno-associated virus (AAV), herpes simplex virus (HSV), poliovirus, and human papillomavirus (HPV)—and techniques such as those using DNA-adenovirus complexes, DNA-protein complexes, and ribozymes. A second theme is techniques for gene transfer to various cell types in vitro and to various tissues in vivo, which include various cells of hematopoietic origin, the arterial wall, liver, lung, keratinocytes, skin, tumors, and synovium. Rather than try to cover all diseases that have been candidates for gene therapy, the Robbins volume focuses on vector systems and target cells and tissues. Thus, although a set of methods may refer, in the introduction, to treatment of a single disease, the techniques described are clearly appropriate for multiple diseases involving the same tissue.

The chapters are organized in parallel, each with an introduction followed by sections on material and on detailed methods, additional notes on the methods, and references at the end. The introductions give useful background on the gene-transfer system and/or the disease being treated (e.g., gene transfer into the lung in the case of cystic fibrosis). The material and methods sections are detailed, and some contain related techniques, for detection of transgene expression, that will be valuable to investigators, such as protocols for in situ hybridization and for tissue harvesting, fixing, and staining.

The individual chapters give brief reviews of the fields and describe why specific vectors were chosen for a particular problem, useful information for investigators trying to choose appropriate vector systems and target tissues. For individuals wanting to begin with vector systems that are new to them, there are good descriptions of how to generate recombinant viral vectors for retroviruses, AAV, and HSV, as well as how to generate various gene-transfer vectors involving purified DNA. Surprisingly, although there are several descriptions of how to grow and purify recombinant adenovirus, there is no protocol for generation of a basic recombinant adenoviral vector. Furthermore, although vectors that have not yet been used with any frequency for gene transfer, such as poliovirus and HPV, are described, recombinant lentiviral vectors, which have been developed during the past few years, have not been included. This latter omission may be due to the timing of the development of this technology vis-à-vis the timing of the publication of the book. The volume also would have benefited from a description of gene-transfer techniques for the CNS, since some of this work has progressed to clinical trials.

As a collection of individual methods in gene therapy, the book is very successful. As a cohesive volume, there are a few shortcomings. For example, it would have been useful for individual chapters to reference other, related chapters that either consider similar techniques or target the same tissue. In the one example where this has been attempted, the chapter numbers are incorrect. The chapters themselves could have been more logically organized, on the basis of gene-transfer system and/or tissue; perhaps subdividing the book into several formal sections would have helped direct readers to the chapters in which they may be interested. As it stands, one either has to read the titles of each of the 30 chapters or read all indexed references, to be certain to have covered all the entries that relate to a given topic.

This book serves as a very useful starting point for researchers and students wishing to obtain brief overviews of different systems for gene therapy/gene transfer and to be referred to relevant publications for further reading. In addition, the book will help individuals to choose which methods to evaluate for themselves and to obtain concise and detailed techniques. The methods detailed within it provide techniques applicable to both basic and clinical researchers. It is a concise compilation of most of the widely used techniques within gene therapy, and both new and experienced investigators should find this volume to be a useful tool for their laboratories.

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