Preface

The preceding two volumes of this series have considered the major changes which genetic manipulation techniques have brought to cancer biology, immunology and plant science. Another area of eukaryotic molecular biology that has seen changes of equal magnitude is parasitology, a subject of great intrinsic interest and enormous medical importance. The application of modern molecular biological techniques has led to major advances in our understanding of parasitic organisms, to improved diagnostic procedures and to the development of novel routes for vaccination.

In Chapter 1 Christine Clayton discusses the molecular biology of the kinetoplastidae, concentrating particularly on African trypanosomes. She discusses the latest knowledge of some of the peculiar aspects of the biology of these organisms, for example their unusual mitochondria and the phenomenon of antigenic variation, and details our current understanding of the structure and expression of their genes. In the following chapter, John Scaife deals with the application of cloning techniques to the development of novel vaccines, taking the malaria parasite as his major example. These two chapters provide an excellent description of how genetic manipulation procedures can lead to rapid progress in a world-wide infectious disease problem while at the same time providing basic biological information at a level of resolution previously unattainable.

In Chapter 3 Mary Bendig discusses one of the first promised benefits of genetic engineering, the production of large amounts of proteins for human therapeutic use. Initial work in this area concentrated upon the use of *Escherichia coli* expression systems, but it was rapidly realized that the polypeptides produced in such heterologous systems are often incorrectly modified, biologically inactive and difficult to recover. Much effort has therefore gone into the development of eukaryotic expression

systems which obviate these problems. This chapter reviews the systems currently in use and gives a clear overview of the various factors, scientific, commercial and regulatory, which determine the choice of an appropriate system.

As always with books of this type, the Editor must thank the authors for the enormous hard work that they have put into their chapters, and the staff of Academic Press for their effort and encouragement.

Peter W. J. Rigby

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