

Book reviews

Bruening, G.; Harada, J.; Kosuge, T.; Hollaender, A. (eds.): Tailoring Genes for Crop Improvement. An Agricultural Perspective. Basic Life Sciences, Vol. 41. New York London: Plenum Press 1987. 228 pp., several figs. and tabs. Hard bound \$ 49.50.

The tailoring of genes for crop improvement is a subject of great importance to those people working in the field of modern methods for plant breeding. This book comprises some aspects of the state of this research at the time of a conference at Davis, California in 1986. The disadvantage of proceedings is that they are usually published a long time after the conference, and therefore, the contents are not generally up to date. Unfortunately, this is also the case for this proceedings. A second disadvantage of this proceedings is that it contains a series of papers describing very different aspects of plant molecular biology without a general description of the tailoring of genes. However, those who are working on the specific aspects that are presented in this book will certainly find very valuable information. The topics that are presented deal with the identification of gene expression. As I mentioned earlier, these topics are described for different gene systems with no connection between these topics. Aspects of regulation vary from the regulation of, plant RNA polymerases and gene expression under stress conditions to the modification of gene expression by anti-sense RNA.

The practical application of crop improvement by gene transfer is described for virus resistance in transgenic tobacco plants transformed with the coat protein gene of tobacco mosaic virus and with its anti-sense RNA. The authors of this chapter state that anti-sense RNA does not improve virus resistance, whereas the coat protein gene itself does. The book ends with some chapters about future aspects. Aspects like the visualization of gene expression by marker genes are described. In another chapter, three aspects of plant cell transformation are described: direct DNA transformation, Ti-plasmid dependent transformation with the maize autonomous transposable element Activator (Ac), and transfection of monocot suspension cultures. The last chapter also describes genetic tools for the analysis of gene expression based on *Agrobacterium*-plant gene transfer systems in analogy to the application of techniques of bacterial genetics in plant gene analysis.

In conclusion, this book contains valuable information about specialized topics of plant molecular biology which are very useful to those working on the same topics. What is missing are correlations between these topics and more general aspects of the use of modern methods of molecular genetics in crop improvement.

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Gassen, H. G.; Martin, A.; Bertram, S.: Gentechnik. Einführung in Prinzipien und Methoden, UTB-Nr. 1290. 2nd edn. Stuttgart: Gustav Fischer Verlag 1987. 386 pp., 181 figs., 34 tabs. Soft bound DM 29.80.

To be honest, scientists are not particularly eager to review books destined for students. In this case, however, I was surprised at how interesting it actually can be to learn about the overall expansion in the field of gene technology.

This booklet (written in German) is divided into 16 chapters, and the topics are as follows: a description of the

morphology and function of cells with emphasis on DNA and proteins; tools being used by molecular biologists, like restriction enzymes and different vectors; methods of identifying clones and constructing gene banks; the use of expression vectors; the description of sequencing and chemical DNA-synthesis strategies; how to localize genes producing only a small amount of a protein; the presentation of different host systems; the application of gene technology today and in the future, including gene therapy and safety regulations together with the description of biological and physical containments.

Of the 16 chapters, most are written by different authors, and each one is of a high scientific standard. The booklet, therefore, is very useful to students and scientists. Because of the style of writing and the well-presented structure, even a non-scientist will be able to understand the basics of this field and what has been achieved. The authors have been able to present their topic in a highly concentrated, compact form and therefore to hook the reader's interest. With the information presented in this booklet, the reader can build up his own arguments on this common topic of discussion.

F. Dums, Bayreuth

Williamson, A. R.; Turner, M. W.: Essential Immunogenetics. 1st edn. Oxford: Blackwell Scientific Publ. 1988. 432 pp. Soft bound £ 19.50.

The discipline of immunogenetics has at least two faces. Originally, it consisted of studying inherited traits that can elicit any immune response when introduced into a foreign body of the same species. In this respect, its subjects are the blood group systems and the major and minor histocompatibility complexes, but also allotypic variation of (serum) proteins. The methods by which these antigens are studied depend on their interaction with either specific antibodies or specific lymphocytes.

When the correlation between some of these traits (especially HLA) and the occurrence of diseases became clear, the subject of immunogenetics became the immune system itself. In this sense, immunogenetics is the study of the genetics of the immune response. Originally, it was carried out with inbred strains of (mainly) mice. Now, it applies molecular genetical and molecular cell biological methods including monoclonal antibodies, isolated genes, and genetic manipulation of cells to unravel the molecular and cellular events leading to a proper immune response.

In their book, A. R. Williamson and M. W. Turner discuss immunogenetics in the second sense: the (molecular) genetics of the immune response. Nothing is said about blood group systems, and the part on the genetic aspects of immunological diseases is short. Allotropy and HLA are discussed only in the context of the immune system. However, the proteins, the genes, and the cells of the immune system are described and discussed extensively and adequately. The style is easy to read, however, very concise. Each chapter is concluded with relevant references and suggestions for further reading. The figures are simple, but clear and when necessary, printed in two colours. The book contains a glossary and an index. It is an excellent introduction to the molecular genetics of the immune system.

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