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Book reviews

Transgenic Animal Technology: a laboratory handbook. Carl A. Pinkert (ed.). Academic Press, London. 1994. Pp. 364. Price £50.00, paperback (comb bound). ISBN 0 12 557165 8.

In the early 1980s, techniques were established which permit the transfer of cloned genes into mice; mice carrying exogenous genes became known as transgenic mice. In the late 1980s it became possible to generate mice which carry designed mutations (often known as 'knockouts') in essentially any gene. One only has to look through the pages of journals such as *Cell*, *Nature* and *Science* to appreciate the impact of these techniques.

Like many of the most worthwhile things in life, transgenic techniques are difficult. To apply these techniques successfully it is necessary to be proficient in recombinant DNA techniques, reproductive biology, micromanipulation, surgery and animal husbandry. It is therefore hardly surprising that there are now quite a number of laboratory manuals which are devoted to, or which include, chapters on transgenic techniques. So what distinguishes this new offering?

It is often the habit of those who work with transgenic mice to forget that flies and worms are animals too. This book follows that tendency, but in contrast with all the laboratory manuals of which I am aware, this is the only one which deals with vertebrates other than mice. In addition to extensive coverage of transgenic mouse techniques, there are four welcome chapters in which methods are described for the production of transgenic rats, rabbits, poultry, fish, pigs and ruminants. This in itself is enough to commend this book to those with an interest in working with these or other vertebrate species. That said, these systems are not nearly as well characterized as mice and it would not be too difficult to assemble from primary sources most of the species-specific information in these chapters.

In other respects, I am in two minds about *Transgenic Animal Technology*. In some ways it is remarkably good; in others, it is remarkably deficient. For example, the section on mouse husbandry is excellent, and the chapter on analysis of transgene integration is also very good, spelling out important information in an accessible manner and illustrated with useful examples. What about the downside? I'm afraid this is more extensive. In many cases, essential information is missing. One important example is the absence of advice on the design of transgene constructs, the starting point for any transgenic project. The chapter on gene transfer is embryonic stem cells (mainly used to produce knockout mice) is good as far as it goes, but stops short of describing the techniques used to generate chimaeras. Figures have been very sparingly used and the quality of many of the photographs is poor.

On balance, I would not recommend this book as a first choice laboratory manual, although it does have merits. If consulted in combination with other books, I imagine that some readers will find it useful.

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Chromosome Microdissection and Cloning: a practical guide. Nabil G. Hagag and Michael V. Viola. Academic Press, London. 1993. Pp. 160. Price £23.50, paperback (comb-bound). ISBN 0 12 313320 3.

In this manual the authors present an overview of the current microdissection methodology and briefly review a few areas of research in which such technology is being applied.

Chromosome structure and organization is described in some detail in the first chapter, together with a review of studies performed prior to 1993 that involved chromosome microdissection. Chapter 2 is a short chapter in which methods for preparing metaphase chromosomes for microdissection and preserving the chromosomal DNA in a manner suitable for cloning and direct analysis are presented. Three different methods for the microdissection of metaphase chromosomes, namely (1) microdissection using an upright microscope and glass capillaries in an oil chamber (2) microdissection by laser microbeam, and (3) microdissection with the use of an inverted microscope equipped with a video camera and higher magnification/higher resolution lenses, are detailed in Chapter 3. Protocols for cloning and identifying genetic sequences from defined chromosome regions, particularly using the polymerase chain reaction, are discussed in chapter 4, as are FISH techniques used to characterize the derived recombinant clones. In Chapter 5 applications of chromosome microdissection are discussed, particularly the role of these teqchniques in the human genome project, gene identification in inherited disorders, gene isolation and cancer research.

Chromosomal microdissection techniques have been developed since the early 1980s. There is, however, a