PROTOCOLS FOR MOLECULAR CLONING

***Molecular Cloning, a Laboratory Manual.* Edited by T. Maniatis, E. F. Fritsch, and J. Sambrook. Pp. 545, ISBN 0-87969-136-0 (Cold Spring Harbor, 1982) $40.**

Molecular Cloning, a Laboratory Manual, is a comprehensive collection of methods/procedures used in the fields of molecular biology/biotechnology. The established researcher, as well as the technician and the beginning student, will find it most useful. The stated purpose of the work is "to compile, to verify . . . , and to clarify" procedures used in the field—a much-needed function indeed. My desk is littered with faded index cards and dog-eared xerox copies of oft-used, much-loved methods; the indexing, referencing and orderly presentation of molecular biological procedures is long overdue. We applaud the enthusiasm of authors Maniatis, Fritsch, and Sambrook in undertaking such a major project.

The *Manual* is organized loosely along biological lines, with increasing emphasis given to particular kinds of methodologies as the work progresses. Chapter titles, which are descriptive, begin with host-vector systems, the care and feeding of bacteria and viruses, progress through electrophoretic methods, construction of genomic libraries and identification of recombinant clones, and close with a chapter on expression vectors. Discussions begin with lots of basic material prerequisite for an understanding of the issues at hand. Explanations of details are most enlightening (e.g. why use phenol/chloroform instead of pure phenol for purifying nucleic acids?). The chapter on enzymes used in molecular cloning is particularly informative. The biochemistry of the *in vitro* reaction, enzyme specificity, and caveats about enzyme stability are detailed; diagrams and drawings are frequent and well-done. Whenever appropriate, mathematical or chemical equations are included (and explained).

Included in the *Manual* are updated versions of "old favorite" procedures (in this field, methods of two years ago are "old"). For instance, the method of Birnboim & Doly[1] for small-scale preparation of plasmid DNA by alkaline lysis as modified by Ish-Horowitz is presented. The modified procedure is faster (two hours vs. four to five hours) and yields higher purity DNA from single clones. The Ish-Horowitz alkaline lysis method was given to an upper division biology laboratory class (30 students) as the procedure to be used in making plasmid DNA "minipreps." Of these students, all molecular biology novices, six out of 10 groups obtained good yields of DNA on the first try; the remainder failed for reasons unrelated to the protocol *per se.* All the remaining students obtained good yields of DNA on the second try. This speaks highly of the clarity, orderliness, detail, and completeness of the presentation of the procedure. I found these qualities to be general qualities of most procedures presented in the *Manual.*

References are abundant (~500) and tabulated conveniently near the end of the book. Very useful appendices include: A) Biochemical Techniques (e.g. preparation of dialysis tubing, equilibration of organic reagents); B) the complete sequence/restriction map of pBR322; and C) commonly used bacterial strains and their pedigrees. The methods are well indexed; generally, one is able to find what one seeks (something not true of earlier CSH lab manuals).

When post-docs/graduate students in our lab were canvassed for their opinions of the *Manual,* I got many and various positive responses but virtually always the same negative response about the cost of the *Manual.* I bought the *Manual* eight months ago (August 1982) for $36.50; it is now advertised by CSH for $40, and our bookstore is currently selling it for $46. Apparently there is a direct relationship between the number of copies sold and the cost per copy. These manuals are "selling like hotcakes" and the feeling is that CSH is taking undue advantage of the already economically-disadvantaged academic community.

Quite a sprinkling of mistakes was found in the *Manual:* In References, the wrong volume or page quoted; In Tables, Table 4 scrambles the compatible cohesive ends generated by the restriction enzymes MboI and those of KpnI; In Procedures the boiling method for isolation of plasmid DNA lists as a reagent 0.5% Triton X100, instead of the 5.0% Triton X100 used in the original reference. A closer proofreading would greatly improve the validity of the methods as presented. It was suggested that a Supplement could be issued periodically to update the *Manual.*

With the exception of a cry for "More restriction maps of plasmids and cloning vectors!" the sins of omission were few. I like the *Manual* and refer to it virtually every day in my work. To authors Maniatis, Fritsch, and Sambrook: Bravo!

Reference

1. Birnboim, H. C. and Doly, J. 1979. A rapid alkaline extraction procedure for screening recombinant plasmid DNA. Nucleic Acids Res. **7:**1513.

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HEALTH AND ENVIRONMENTAL HAZARDS IN BIOTECHNOLOGY

***Applied Genetic Engineering Future Trends and Problems.* By Morris A. Levin, George M. Kidd, Robert H. Zaugg, and Jeffrey R. Swarz, pp. 191. ISBN 0-8155-0925-1 (Noyes Publications) $24.00**

This book deals broadly with applied biology, including genetic engineering. The future trends promised in the title are a series of possibilities set forth to provide the framework for the primary subject of the book, which is a discussion of the possible health and environmental hazards posed by rapid expansion of the industrial and agricultural uses of biological and microbiological technologies including recombinant DNA (rDNA). Morris Levin is on the staff of the EPA's Office of Strategic Assessment and Special Studies; his coauthors are associated with the private sector. The book is based on a