DNAs (bacteriophages ΦX174, M13mp8 and λ, plasmid pBR322 and the animal viruses SV40 and Adenovirus-2). A brief list of DNA and RNA modification enzymes is presented in Appendix 4 while Appendix 5 gives a list of commercial suppliers of equipment and consumable materials.

Although a large number of excellent Molecular Biology Manuals are already available, this reviewer considers that this member of the *Practical Approach* series will find favour in a large number of laboratories especially the ones with aspiring or less experienced molecular biologists. The book has been written with the care and attention expected from this well-known series of laboratory books.

Demetris Savva

Oligonucleotides and Analogues: A Practical Approach; Edited by F. Eckstein; IRL Press at Oxford University Press; Oxford 1991; xxiv + 313 pages. £22.50

Chapter 1 entitled 'Modern machine aided methods of oligodeoxyribonucleotide synthesis' sets the scene for the entire volume. It explains the basic chemistry behind oligonucleotide synthesis, containing both an informative description and commentary on how the technique has evolved from earlier beginnings to make the chemistry simpler and more efficient, and generally less hazardous. A section described as 'a practical guide to automated DNA synthesis' is what a book of this type is all about and provides plenty of the necessary 'What to do...' instructions. The final section discusses limitations of solid phase deoxyribonucleotide synthesis and draws attention to the effects of the various side reactions that can occur during the process and emphasizes the need to purify rigorously the final, desired reaction product.

A subsequent description of the synthesis of oligoribonucleotides complements this beginning and discusses the difficulties of coping with the extra 2'-hydroxyl group on the ribose. A number of chapters then go on to describe the synthesis of oligonucleotides with modifications to the phosphodiester backbone, the bases or the sugar residues and numerous examples are given of the chemical properties and usefulness, both real and potential, of the different molecules considered. Some of the advantages are general, such as being resistant to nucleases, whereas others are more specific. For example, DNA-RNA duplexes containing 2'-*O*-methyl oligoribonucleotides are not a substrate for RNase H and oligonucleotide phosphorodithioates are stereospecific achiral molecoles, whereas phosphorothioates, phosphoramidates and methyl phosphonates are all phosphorus chiral, so that a number of non-resolvable diastereoisomers results during their synthesis. The list of proposed functions for such molecules in biological research is impressive and includes studies on enzyme biochemistry, autolytic processing of RNA (ribozymes), interactions with proteins, oligonucleotide-directed mutagenesis, affinity chromatography and antisense molecules, these having considerable potential value for therapeutic use.

The later sections in this volume discuss the attachment of various reporter groups to the oligonucleotide. These are usually non-isotopic and facilitate detection by fluorescent, chromophoric or chemiluminescent methods. Procedures are given for attachment of appropriate ligands to various parts of the oligonucleotide. Modification of the 5'-terminus leaves the 3'-terminus free for enzymic manipulations as required for Sanger sequencing and for PCR amplification applications. Site specific attachment of reporter groups to the phosphodiester backbone is also possible and an example is given of the preparation of site-specifically labelled tryptophan operator oligonucleotides used to examine binding of repressor protein. The use of reporter groups throughout the oligomer by attachment to bases has created hybridization probes with detection sensitivities exceeding those of ^{32}Phosphorus. Finally, the use of DNA intercalators and photoreactive agents as ligands allows some desired chemical change to be effected at specific target sites.

The value of oligonucleotides is thus now well established and as to future developments it is clearly a case of 'watch this space'.

This is an excellent update on the 1984 Gait publication in the series offering much, not only for the experienced hand, but also for the newcomer who may not be aware of the variety of oligomers that can now be made or the uses to which they can be put. As practical manual, however, its true worth cannot be known until people attempt to follow the instructions contained within it.

Colin K. Pearson

Making Monoclonals; By D.G. Newell, B.W. McBride and S.A. Clark; Public Health Service Laboratory (distributed by Cambridge University Press); London, 1991; viii + 94 pages. £10.00 (pb)

With the production of monoclonal antibodies having become an industry rather than an art an inevitable consequence has been a range of publications decribing both the method itself and its associated techniques. These vary from comprehensive protocols as found in immunological compendia such as Harlow and Lane's 'Antibodies: A Laboratory Manual' (Cold Spring Harbor Lab., 1988) to several detailed beginner's guides. The small volume by Newell et al. is one of the latter and from the first page the authors make it clear that their aim is to aid the novice in producing monoclonal antibodies specifically to infectious agents for subsequent use in immunodiagnostics.

The book has six chapters covering each stage of the process in