Eckstein, F.; Lilley, D. M. J. (eds.): Nucleic Acids and Molecular Biology, vol. 2. Berlin Heidelberg New York: Springer 1988. 223 pp + XI, 70 figs., 13 tabs. Hard bound DM 148.–.

While it might be thought that there is a proliferation of books on nucleic acids and molecular biology, the editors of this annual series, F. Eckstein and D. M. J. Lilley, have chosen their authors well and produced a second volume to the series Nucleic Acids and Molecular Biology that is both interesting and topical. They have chosen structural aspects as a general theme for this second volume, which includes the structure of DNA and of DNA-protein interaction.

The volume begins with chapters on laser Raman spectroscopy and conformation of polypurine-polypyrimidine sequences. A chapter summarizing and assessing the Raman bands, which serve as fingerprints of specific conformational structures of DNA is particularly timely. It sets out to review classical Raman spectroscopy of various DNA crystal structures to indicate which Raman bands can be used for rapid characterization, and to point out how the Raman indicators can be useful for nucleic acids not amenable to crystallographic analysis. It is pointed out that Raman spectra are most useful when applied in combination with X-ray data, and that B, A and Z conformations of DNA can be identified from Raman spectra. The study of protonated oligopyrimidine/oligopurine duplexes is a complicated one, as shown in the second chapter in this book, and has not yet advanced sufficiently to suggest an unequivocal model for transition structures. Following this is a chapter on the design of sequence-specific DNA-binding molecules, with the ultimate aim being the development of new clearing moieties for DNA so that human chromosomes could be cleaved uniquely at a single nucleotide position within a chromosome. A further chapter on metal complexes which target DNA sites develops this theme and also shows the specificity of $-Co\ (DIP)_3^{3+}$ for cleaving Z-DNA regions. A chapter on bleomycin illustrates another metal complex agent that aids in DNA cleavage. The bleomycins are a family of structurally related glycopeptide antibiotics.

The editors have chosen to deal with oligonucleotides next in this volume, given that single-stranded regions in the DNA double helix are made accessible to oligonucleotides that might interfere with the normal course of the enzymatic processes. Additionally, a chapter subsequently deals with oligonucleotide-directed mutagenesis with single-stranded vectors. It is claimed that these methods can produce mutant frequencies of greater than 50% under certain conditions. Following a chapter on protein-induced DNA bending, there follows a treatment of the so-called "Zinc-finger". This refers to a linear arrangement of repeated protein domains, each centered on a tetrahedral arrangement of Zn ligands; the whole of the approximately 30 amino acid repeat is rich in basic and polar residues, implicating the region in DNA binding. These "Zn-fingers" are found particularly in transcription factors. A treatment of NMR studies on the repressor-operator interaction (in particular the *lac* control region) and of DNA repair by the *Ada* protein of *E. coli* precedes a final chapter on steroid hormonesl (e.g. glucocorticoids and progestins) and the interaction between steroid hormone receptors and chromatin.

This book is a "must" for all students, undergraduate or post-graduate, involved in research in genetics or nucleotide biochemistry in that it deals with so many important structural aspects of the interaction of DNA with other molecules and the importance of these interactions to molecular biology. A chapter in this volume by W. Holloman demonstrates the importance of these structural considerations by linking rec 1 protein to the promotion of homologous pairing in DNA. This involves a synapsis phase with a paranemic joint, thought to contain left-handed Z-DNA. Potential Z-forming stretches have been found in the vicinity of recombinational crossover points in a number of instances, an observation we are bound to hear more about in the future. Yes, you should certainly add this one to your library.

J. F. Jackson, Glen Osmond

Erratum

Theor Appl Genet (1990) 79:417–421. A. Gallais: Theoretical determination of the optimum number of parents for synthetics. Unfortunately Table 1 which is mentioned in the legend of Fig. 1 was not printed in the article. Here is the missing table.

Table 1. Description of the situations represented Fig. 1. The genetic coefficient of variation is always of 0.10

Situation	d	h	ϱ	q^2	g^2	N
1	0.10	0.80	0.80	0.50	0.75	250
1′	0.10	0.80	0.80	0.90	0.75	250
2	0.20	0.80	0.80	0.90	0.75	250
3	0.20	0.80	0.80	0.50	0.50	250
4	0.30	0.80	0.80	0.90	0.75	250
5	0.20	0.60	0.50	0.50	0.75	250
6	0.40	0.70	0.80	0.90	0.75	250
7	0.40	0.50	0.80	0.90	0.75	250
8	0.10	0.70	0.80	0.50	0.75	100
8′	0.10	0.70	0.80	0.85	0.75	100
9	0.20	0.70	0.80	0.85	0.75	100
10	0.20	0.50	0.80	0.85	0.75	100
11	0.30	0.70	0.80	0.85	0.75	100
12	0.30	0.50	0.80	0.85	0.75	100