Book Review

GENE STRUCTURE AND EXPRESSION, THIRD EDITION

The author states in the introduction to the first edition, that he "believe(s) that it should be a useful book for medical students who wishes to become familiar with recent ideas and techniques in molecular biology to help in understanding further advances when they arrive. It will also be of use to honours and graduate students in genetics, biochemistry and those who would not necessarily regard the topics discussed here as their major interests in these subjects." It starts from chemical structure of DNA, proceeds into methodology, prokaryotic and eukaryotic gene expression, and extends its description to oncogene, immune system, *etc.*

This book, therefore, is rather a miniaturized version of the renowned textbooks such as J.D. Watson's "Molecular Biology of the Cell" than what one might imagine from the title.

Our knowledge in this field is expanding ever so rapidly, that any textbook of this comprehensiveness "will certainly be out of date before the writing is finished, let alone published.". Yet, this book is doing reasonably well to catch up recent findings in some topics, such as eukaryotic transcription and bacterial replication.

Looking through the chapters, I noticed total lack of basic description of protein structure which is necessary for the claimed readership. In "1.6 Protein binds to DNA," it says "Three main types of domain structures are involved ..." without explaining what is domain structure. The chapter, "12. Some gene families" suddenly starts by describing collagen. Isn't the concept of gene family the group of genes that encodes proteins of related structure? Descriptions in 12.8 (Polyproteins are proteolytically processed to yield the active hormones) are certainly misplaced.

Turning the pages, I found surprising density of inappropriate or in many cases erroneous sentences or figures. To name a few,

1. p. 7. Fig. 1.5. None of the drawings show supercoiled DNA.
2. p. 11. Many C2H2 zinc finger proteins are found in many organisms including human, and "fungal proteins that controls the synthesis of certain small

molecules" are not good examples.

3. p. 44. Table 3.1, footnote. "*This sequence is recognized even if this C is methylated." should be read "*This sequence is not recognized if this C is methylated."

4. p. 52. "Other agents that denature DNA are high salt concentrations and ..." is wrong or misleading. Only the chaotropic salts such as sodium perchlorate or guanidinium chloride are denaturant at extremely high concentrations.

5. p. 41. "The mobility of any sequence is proportional to its chain length ..." is wrong and misleading. It is inversely proportional to logarithm of chain length at a certain length range.

6. Same page. "The higher ... degree of cross-linking of a polyacrylamide gel, the slower the nucleic acid molecules migrate." is wrong. Pore size of polyacrylamide gel is smallest at 5% cross-link, and it increases going to either direction.

7. p. 53. Southern blotting is only for hybridization of probes to filters that bears DNA transferred from electrophoretic gel.

What I don't understand is why so many errors survived the two revisions (this is the third edition, isn't it). This is a good proof that a single author should not even try to write a book that covers such a broad area. I hesitate to recommend this book to my students.

                                                                    (Kenshi Hayashi)