

*Application of Computers to Research on Nucleic Acids*

Edited by D. Soll and R.J. Roberts

IRL Press; Oxford, Washington, 1982

458 pages. £9.50

The Application of Computers to Research on Nucleic Acids comprises one issue of Nucleic Acids Research (volume 10, number 1, January 1982). Its 38 papers are a tribute to the remarkable success of the rapid sequencing techniques developed for DNA by Sanger and by Maxam and Gilbert. The rapid accumulation of sequence data has created a need for both the storage and analysis of nucleic acid sequences. The programmes described embrace the design of sequence experiments (including a shot-gun approach), reading sequencing gels, and the storage and analysis of sequence data. The aspects of the analysis of sequence data for which programmes are presented range from the recognition of restriction sites and sequence symmetries, drawing circular restriction maps, analysis for amino acid sequence data and the investigation of codon preferences. The comparison of nucleic acid sequences is also made easier by programmes designed to identify sequence homologies and phylo-

genetic relationships. The computation of the secondary structure of RNA is a more speculative enterprise but the programmes presented advance the subject.

The editors aim to provide a starting point for the investigator newly discovering a need for these sorts of programmes and to stimulate those already deeply involved to exchange and improve existing programmes. This volume is geared to the specialist rather than the general reader and broadly fulfils the aims of the editors. This collection of papers is likely to prove very useful for those interested in nucleic acids, especially since the storage and analysis of sequence data presents a problem that the computer is well suited to solve. This volume provides excellent value for money because it is an inexpensive guide that delineates the current status of the subject.

R.A. Cox

*The Operon*

Edited by Jeffrey H. Miller and William S. Reznikoff

Cold Spring Harbor Laboratory, New York, 1980

viii + 470 pages. \$24.00

This is the second edition of this excellent book and differs from the first in the inclusion of 3 reprints as an Appendix, to expand the coverage of attenuation. This edition is printed as a paperback and should thus be accessible to a wider audience.

The first half of the book is based on a meeting on the lactose operon held in Cold Spring Harbor in 1976. The second half presents other bacterial genetic regulatory systems which differ from the *lac* operon: the tryptophan and galactose operons of *E. coli*, bacteriophage  $\lambda$ , the histidine utilization sys-

tem of *S. typhimurium* and *K. aerogenes*, the arabinose regulon of *E. coli* and phase variation in *Salmonella*. Thus, the reader can appreciate the variety of mechanisms by which genetic regulation is effected in bacteria; and who can doubt that this knowledge has greatly influenced the questions currently being asked of eukaryotes?

Even though this volume was revised in early 1980, the picture has not changed substantively since then. On the one hand, undergraduates or research workers wishing to obtain an overview of

the field will find a selective scan of this book very useful. On the other hand, immense detail, particularly on *lac*, is provided along with numerous references, for the specialist.

In conclusion, whilst this book is essential for any book shelf with biological aspirations, any owner of the first edition may find it sufficient merely to note

down the 3 references on attenuation, rather than fork out for a whole new volume. However, those who have so far managed without it, would do well to take advantage of the new, cheaper version.

R.K. Patient

## *Electron Transport and Photophosphorylation*

### *Topics in photosynthesis; volume 4*

Edited by J. Barber

Elsevier Biomedical, Amsterdam, New York, 1982  
xvi + 288 pages. \$89,75 (approx. £50)

This is the fourth volume in the excellent series '*Topics in Photosynthesis*'. It maintains the high standard set by its predecessors although the decrease in the number of pages and the rise in price combine to make the cost/page of text approx. 17 p. This seems a bit excessive to me, and will certainly encourage illegal use of photocopiers! The quality of the paper has dropped as well.

All the Chapters are well-written by experts in their respective fields. Malkin summarises the redox properties of the components of the electron transport chain in chloroplasts and Cogdell does the same for photosynthetic bacteria. Cox and Olsen discuss the localisation of the chain components in

different regions of the chloroplast membrane, which leads on to a discussion (Schlodder et al.) of the mechanism of photophosphorylation, prefaced by an excellent review (Nelson) on the  $CF_0$ - $CF_1$  ATPase of chloroplasts. Prince et al. discuss the application of chemiosmotic theory to bacterial photosynthesis, and Baltscheffsky et al. review the mechanism of energy coupling and photophosphorylation in bacteria.

This valuable book should be available to all research workers in the field. At the price quoted I cannot see many of them buying their own copy, however!

B. Halliwell

The Applications of Computers to Research on Nucleic Acids. 458 pp. (English). Paperback. [top of page]. © 2020 by Editorial URSS. All rights reserved. SUMMARY The nucleic acid of rubella virus was shown to be RNA by the incorporation of (aH)-uridine into virus particles, and by the presence of ribonuclease-sensitive material, sedimenting mainly at 38 to 40S, in sodium dodecyl sulphate extracts of purified virus. There were at least two virus-specific RNAs in cytoplasmic extracts of BHK21 cells infected with rubella virus. Published by Oxford University Press on behalf of Nucleic Acids Research. View full-text. Article. Molecular surfaces of proteins and nucleic acids. January 1983. M. Connely. Read more. Article. Stereochemistry of nucleic acids and polynucleotides III. Electronic charge distribution. July 1971. Biopolymers. Nucleic Acids Research is an open-access peer-reviewed scientific journal published by Oxford University Press. It covers research on nucleic acids, such as DNA and RNA, and related work. According to the Journal Citation Reports, the journal's 2016 impact factor is 10.162.[1] The journal publishes two yearly special issues, one dedicated to biological databases, published in January since 1993, and the other on biological web servers, published in July since 2003. References. ^ "Nucleic Acids Research". 2014 Journal Citation Reports. Web of Science (Science ed.). Thomson Reuter