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Biological Separations in Iodinated Density Gradient Media

Edited by D. Rickwood

Information Retrieval Ltd; London and Washington D.C., 1976

205 pages. £ 5.50, \$ 12.00

The Proceedings of the Colloquium on the Use of Iodinated Density-Gradient Media for Biological Separations (Glasgow, 1975) adequately cover the new developments in density-gradient centrifugation technique. Sucrose, ficoll and CsCl are widely used density-gradient media for ultracentrifugation of biological materials. However, some disadvantages, such as their narrow density-range and high viscosity have led to search for new alternatives. The derivatives of iodinated organic compounds used as X-ray contrast media have already established themselves as such.

The major theoretical and practical aspects of using these gradient materials for the fractionation of a wide range of biological systems are surveyed. The effort of the editor may not be praised enough. Separations of nucleic acids, ribonucleoprotein par-

ticles, chromatin, chromosomes, blood cells, viruses and many other subcellular particles are discussed by acknowledged experts in this field.

Although the exact nature of the interaction between separated particles and the iodinated compounds is not yet clearly known, these materials, particularly metrizamide, seem to be the most useful density-gradient media. It is easy to handle them and they are the least deleterious to biological material.

Useful practical advice, such as the mode of recovering the rather expensive gradient media, is also included. This book can serve as a handbook of the new gradient separation technique for specialists and for biologists newly joining this field, since nobody can avoid its application.

Á. Nagy

Biology of Radiation Carcinogenesis

Edited by J. M. Yuhas, R. W. Tennant and J. D. Regan

Raven Press; New York, 1976

xxiii + 347 pages. \$ 30.00

This volume is based on a Symposium held at Gatlinburg, Tennessee in April 1975 and consists of an Introduction and 28 short articles by 53 different contributors. Each author has presented the most recent investigations in his specific area and the field covered ranges over a wide spectrum of organisational levels, subcellular, cellular, viral, tissue, organ, whole animal and population studies.

Inevitably a book of this type must fail to present any coherent story, but the articles are of particular

interest in that throughout there is a co-ordinating theme in an attempt to analyse the mechanisms involved in radiation carcinogenesis, rather than simply to add to the already existing mass of empirical fact, since any rational predictions of potential radiation hazards to man can only be made on this basis. It is not claimed that a final solution to this problem has been achieved, but the general impression is that such a solution is rapidly coming much nearer.

The work described is particularly concerned with

radiation, including very low-level radiation, but viral and chemical carcinogenesis are not ignored, since in many cases similar mechanisms seem to be involved and there is also a degree of synergism between radiation and other carcinogenic agents.

Two facets of the problem, the relationship between radiation and the normal cellular repair

systems and the relationship between local cellular damage or destruction and subsequent tumour induction, are undoubtedly of particular importance. These are well discussed in a number of the contributions.

G. E. Francis

*Organization and Expression of the Viral Genome.
Molecular Interactions in Genetic Translation*

Proc. 10th FEBS Meet. Volume 39, Paris, 1975

Edited by F. Chapeville and M. Grunberg-Manago
North Holland/American Elsevier; Amsterdam, New
York, 1975, 329 pages. Dfl. 75.00, \$ 28.95

The 10th FEBS Meeting was held in Paris at a time when exciting new results and new ideas were produced simultaneously in practically all lines of research on gene expression. Progress in this field is so fast that Proceedings of a congress often run the risk of being out of date at the time of publication. It is lucky in this respect that although the last year has brought some new developments in the topics covered at the FEBS Meeting, the most interesting contributions in this field have already been reported at the Meeting and are well covered in the present volume.

The first part of the book contains the papers presented at the symposium on Organization and Expression of the Viral Genome. These articles discuss the genetic mapping of bacteriophages and of animal viruses, control mechanisms of viral transcription structure and translation of viral RNAs (including the then new finding of capped structures in eukaryotic mRNAs) and the functions ascribed to tRNA and to tRNA-like structures in viral genomes. The second part covers the Symposium on Molecular Interactions in Genetic Translation. These topics are closely connected with the above problems: mapping of parts of the *E. coli* chromosome, structure of tRNA, tRNA-protein interactions, some aspects of translation with special emphasis on the mechanism of initiation.

Several authors give in addition to a report on

their latest results also a general survey of the state of research in their particular field. Although this refers to 1975, it provides valuable information. It is indeed very useful to have in one volume a complete coverage of these important topics which are still in the very centre of interest. The 26 articles differ, of course, in importance but the majority of the contributions present highly interesting work and significant results, arrived at by new approaches and by new techniques.

Papers of outstanding interest are: Allet's review on nucleotide sequences of different promoter sites, Fiers' report on the mapping of the SV40 genome and on the sequencing of some restriction fragments, Studier's transcription maps of T₇ DNA which allow some important conclusions as to the function of different genes involved in the control of transcription, Clark and Klug's excellent report on the three dimensional structure of tRNA, Nomura's map of two regions in the *E. coli* chromosome where genes for ribosomal proteins, ribosomal RNA, transfer factors and RNA polymerase subunits are clustered together, Bosch's paper on the role of protein factors in the initiation of translation in prokaryotes and Staehelin's report on the same problem in a eukaryotic system.

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