BOOK REVIEWS

Teratocarcinoma and Embryonic Cell Interactions. (Eds. T. Muramatsu, G. Gachelin, A. A. Moscona and Y. Ikawa) UK, Academic Press, Inc, 344 pp, 1982, £23.80.

We are living in the golden age of molecular and cellular biology. New discoveries assail us from the pages of “learned” journals and are often published first in the daily newspapers. At such a time two years is a long period to wait for a meeting report which summarises an area of active research. The editors have attempted to ameliorate this problem by writing a summary of the advances made in teratocarcinoma research between 1980 and the publication date. Unfortunately, this serves to emphasise the problem and increases the introduction section of the book to the record proportions of two Forewords, a Preface and two Editorial Notes.

Teratocarcinomas are a focal point where tumour biology and developmental biology meet. This confluence has contributed much to concepts in tumour biology and is currently apparent in the study of high molecular weight carbohydrate structures found on murine embryos and teratocarcinoma stem cells and on many human tumour cells. The clustering of related papers on the same topic is one of the advantages that a meeting report has compared with conventional publication and the editors are to be congratulated on their prescience in selecting carbohydrate biochemistry as a major theme of their meeting. Another advantage the meeting report has over journal publication is the possibility of including discussion of presented papers. These sections in the book make exciting reading being, apparently, faithful transcripts even down to the theatrical gestures of the speakers. In conclusion, this book, by its very nature, is dated in content and nearly all the work is published elsewhere; this disadvantage is partially offset by being a convenient, single volume, summary of the teratocarcinoma story as it was in 1980.

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Mutagenicity—New Horizons in Genetic Toxicology. (Ed. J. A. Heddle) UK, Academic Press Inc., 471 pp, 1982, £36.40.

This is a rather expensive collection of 16 chapters intended to illustrate the very wide range of problems which can be tackled by applying short-term mutagenicity tests. The book starts with microbial tests, follows with chapters on cultured mammalian cells, tests based on sampling cells from human populations, and ends with two chapters on monitoring environmental pollution using higher plants and fish as indicators of genetic damage.

The selection of subject matter is rather quirky. There are two chapters on the use and relevance of short-term tests for detecting mutagens in food (Sugimura and Nago; Stich, et al.) but nothing on the use of mutagenicity tests for looking for endogenous mutagens in body fluids and excreta—surely a “new horizon” and fascinating if only for the enormous problems attendant upon such studies. A chapter on the use of short-term tests for monitoring water supplies is also lacking.

The book starts with John Ashby’s stimulating views on the value of short-term tests for predicting long-term effects such as carcinogenicity. In the preface, the Editor (John Heddle) alludes to the “explosive growth” in this area, and in one respect, Ashby has been caught in the blast. He dwells upon the challenge to genotoxicology posed by the inability of ethylene oxide (a potent, directly-acting alkylating mutagen) to induce tumours at the site of application—the respiratory tract of animals dosed by inhalation. This is an unusual finding for a directly-acting alkylating agent. He makes much of tumours (testicular mesotheliomas) which arose remote from the application site, and suggests that the bacterial mutagenicity of ethylene oxide resides in the activity of the parent molecule, and that the “indirect” carcinogenic effect in mammals may be due to a metabolite: this may be so. However, like the unfortunate Richard III, Ashby runs before his horse to market, since ethylene oxide does induce tumours at the site of application. Dunkelberg (Br. J. Cancer, 46: 924, 1982) force-fed rats with it and produced squamous-cell carcinomas of the fore-stomach. Even after 3 years, this treatment did not induce tumours remote from the application site. This illustrates the dangers of over-interpreting short-term data (which are easy to collect and therefore plentiful) and using them to erect elaborate hypotheses to explain scarce and sometimes dubious data from long-term experiments. However, Ashby has done us a service by airing these problems.

There follows a useful chapter by Bartsch, Tomatis and Malaveille, who have exploited the valuable resources of the IARC to produce some excellent summaries relating Ames-test data on selected carcinogens to the Covalent Binding Index of Lutz. They discuss in some depth the possibility
that there may be a useful quantitative relationship between short-term mutagenicity data and long-term carcinogenicity data. Not surprisingly, they conclude that such a relationship is unlikely (at least that is how I interpreted their guarded conclusions).

There is an excellent chapter by Carrano and Moore on methods for quantifying sister-chromatid exchange in humans. The authors supply some valuable data which demonstrates the variability of SCE levels in human peripheral lymphocytes and emphasise the need for rigorous statistical design of protocols.

Despite its uneven coverage, this volume will be a very useful source of reference to anyone interested in genetic toxicology, and does succeed in demonstrating the versatility of short-term tests in allowing investigations which would have been impossible only one or two decades ago.

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Prostaglandins and Cancer. (Prostaglandins and Related Lipids—Vol. 2). (Eds. T. J. Powles, R. S. Bockman, K. V. Honn and P. Ramwell) New York, Alan R. Liss Inc., 841 pp, 1982.

This book records the proceedings of the “First International Conference on Prostaglandins and Cancer” held in 1981 with the stated objective of bringing together those scientists involved in prostaglandin research, with those involved in cancer research. These proceedings indicate that this objective was fulfilled, although the bias is towards the biology rather than the chemistry of the prostaglandins.

It is divided into eight major sections. The first comprises four review articles which provide an excellent introduction to the metabolism and pharmacology of the prostaglandins. The remaining sections are each divided into review papers and brief reports. Many of the latter are so insubstantial as to only add to the bulk of an overlong book without adding significantly to its value.

The second and third sections cover respectively, the initiation and promotion phases of carcinogenesis. The former provides in-depth reviews on the role of prostaglandin oxygenases in the synthesis of carcinogenic metabolites, whilst the latter is concerned with the actual role that the prostaglandins may play in tumour promotion.

The next two sections concern the role of prostaglandins in the control of cell replication/proliferation and cell differentiation/interaction. These are followed by a section entitled Prostaglandins, bone metastases and hypercalcaemia which closely relates to the following section covering host-tumour interactions. These two sections attempt to integrate the relationship and relative roles of prostaglandins synthesised by the tumour cell and the host during tumour progression.

The concluding section, covering the effect of pharmacological manipulation of prostaglandin synthesis on tumour growth and metastasis in vivo, describes potential applications to the treatment of cancer. The final paper in this section describes the sole human study and concludes on the depressing note that the infusion of prostaglandins known to inhibit tumour cell proliferation in experimental systems has no effect on the progression of human cancer. This disappointing result is in contrast to the work described elsewhere in this book, which covers an exciting interaction between two areas of scientific research.

Specialists in the field of prostaglandin research will probably gain little from this book, but those oncologists prepared to delve into its 841 pages will find many papers of interest.

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Pharmacologic Principles of Cancer Treatment. (Ed. B. Chabner) USA, W. B. Saunders Company, 457 pp, 1982, £45.00

Over the last five years there have been a number of books dealing with the pharmacology of anticancer drugs. Although these have been of interest there has really been no authoritative volume that has dealt with this subject in depth. This is the first time I have had the opportunity to review such a text and I feel that this will fill a real need for all those concerned in oncology. The book is divided into two sections, the first contains excellent reviews on the principles of cell kinetics, pharmacokinetics, clinical pharmacology and late complications of drug therapy. The second section is devoted to individual chapters on all the commonly used cytotoxic agents. Each is comprehensively covered and an authoritative bibliography appended. Throughout, the text presents a unanimity that holds the reader’s attention, diagrams and tables are clearly labelled, and not overdone. This book should appeal to all those involved in the care of the patient with