

described in sufficient detail for both the results and the conclusions deduced from them to be readily understood. Partial reactions are given before each new set of experiments, which saves a reader who is not actually working on the ATPase from having to refer continually back to a complete scheme. The references cover most of the kinetic experiments on the enzyme to 1980 and there is adequate discussion of disagreements between different workers.

However, no other aspects of sarcoplasmic reticulum function are covered in this book. Topics such as the physiological control of calcium release and uptake during a contraction cycle,

other proteins of the sarcoplasmic reticulum, quantitative aspects of calcium movements in muscle, structural studies of the calcium ATPase, etc. are not discussed at all. This is not meant as a criticism of the book, since the author deliberately sets out to cover one aspect of the subject only. It is meant as a warning that this book should not be bought by those expecting a general treatise on sarcoplasmic reticulum. It is written purely as a detailed review of kinetic studies on the calcium ATPase, and from this limited viewpoint can be recommended.

P.J. England

Interaction of Platelets and Tumor Cells

Progress in Clinical and Biological Research Vol. 89

Edited by G.A. Jamieson

Alan R. Liss; New York, 1982

xx + 523 pages

The two very active research fields, cancer and coagulation, have been moving inexorably towards each other during the last decade or so and although it is well established that clotting abnormalities (second only to infections) are one of the major causes of death in cancer patients, the value of anticoagulant regimes in the treatment of malignancy is still very much a controversial issue. What is more certain, however, is that there are so many features of the growth and spread of tumours that appear to interdigitate in some way with the body's haemostatic mechanisms that intensive investigations of the various factors and the cell to cell surface interactions on which the close association of these two processes depend can be amply justified since they may well lead to a further understanding of metastatic processes.

Around twenty years ago it was first demonstrated in tumour-bearing animals that the incidence of metastases could be substantially

reduced by decreasing the circulating platelet population and some years later it was clearly shown that the metastatic potential of tumour cells in vivo roughly correlated with their capacity to aggregate platelets in vitro. Strangely, with the passage of time and despite the current wealth of knowledge we now possess about the physicochemical properties of the surface membranes of both platelets and tumour cells there is still a paucity of information on what these cell interactions may mean at the 'small print' molecular level. Clearly this was a major stimulus for devoting the 1981 Chesapeake Conference to this important topic area. The present publication, which is Vol. 89 in a highly regarded series dealing with progress in clinical and biological research, brings together all the major contributions to that conference which was organised and chaired by the editor.

Inevitably when a first time conference is focuss-

ed on a topic which draws its enthusiasts from a wide spectrum of basic and clinical research with cell biology, pathology, pharmacology and biochemistry, all closely interwoven, the collected contributions for publication can take on the character of a 'pot pourri'. The editor of this conference report is to be congratulated on achieving a sufficient measure of homogeneity of interests in the various sessions that the value of the book is greatly enhanced by the inclusion of 18 lively discussion sections interspersed throughout the 27 major contributions.

What is really missing from the volume, however, is a good introductory survey chapter, setting the scene as circumscribed by the Conference title, putting the field into historical perspective, critically analysing the progress to date and possibly also highlighting the potentially fruitful areas of future research investment. The opening contribution to the first session of the Conference, though extremely valuable with a well-researched bibliography, could not fulfil this survey role since the authors of this contribution set out to document all the known coagulopathies which have been reported to be associated with malignancy, from frank thrombosis to the involvement of more specific clotting factors. These have been admirably catalogued and their significance well discussed. Later contributors to this first session headed 'Pathology and Pharmacology' tended to confine their interests to the effects of antiplatelet drugs in animals on tumour growth and metastatic spread. A number of the drugs studied, which are known to be effective in treating or preventing thromboembolism, also decreased the incidence of metastases but to date no large scale clinical trials seem to have been conducted. This session linked in well with the following session in which contributors described *in vivo* studies of the action of human tumour cells on circulating platelets. Of the animals proposed, two groups advocated the nude-mouse as a model system since being deficient in mature T-lymphocytes it appears to have some value in selecting highly metastatic variants. The claimed stability, through continuous mouse culture of sublines isolated in this way could form a basis for better standardised procedures for testing platelet tumour cell interactions or the efficacy of antimetastatic agents. There are some complexities, however, since many human

tumours of proven high metastatic potential do not metastasise in adult mice but do so in the young (deficient in natural killer cells). Selection of metastatic variants in this way may therefore depend more upon their resistance to T-cell-independent defence processes rather than to platelet associations or cell attachment to vessel walls. In sessions 3 and 4 a number of the reports draw attention to the platelet's ability to release, from internal stores, proteins, and perhaps lipid factors too which affect tumour cell growth rates and metastatic activities. This is an area of intensive activity with a number of research groups (not unfortunately represented at this Conference) pursuing the more detailed molecular characterisation of the various platelet-derived growth-promoting factors which are likely to be released during tumour cell-platelet interactions. This topic warrants inclusion in later conferences since these important factors will certainly have to be taken into account in the overall picture. Other participants in this and later sessions had investigated the interaction of tumour cells alone with vascular endothelial cells and basement membrane surfaces. Also by the use of a perfusion chamber model the association of mixed platelet/tumour cell free floating emboli with sections of normal and de-endothelialised aorta segments can be explored and a wider adaptation of this technique may well shed some light on the very early events occurring during blood-borne metastases. The final session of the Conference included papers grouped under the general heading 'Biochemistry' but the actual biochemical content was generally disappointing. Using platelet-tumour cell aggregation some attempts had been made to study the cell surface molecular features on which the association might depend but though certain sialoglycoproteins and membrane phospholipid integrity appear to be important features, thrombin generation and ADP released from activated platelets add extra dimensions of complexity in understanding the events.

There are, however, many useful and significant contributions in this volume which should interest oncologists, haematologists, immunologists, pharmacologists and biochemists but readers will have to chart their own course through the 27 contributions and reference lists to appraise the current state of knowledge with respect to their own disciplinary interests since the field encompasses

almost the whole of cell biology. Some advances have clearly been made and some interesting and testable concepts are emerging but as a cry for increasing investment in this important area of tumour biology the progress so far from 'phenomenology' towards a more molecular

understanding of these cell interactions has been disturbingly slow, as represented by the work presented in this volume.

N. Crawford

Histological and Histochemical Methods: Theory and Practice

by J.A. Kiernan

Pergamon Press; Oxford, 1981

344 pages. £29.00 (hardback), £10.50 (paperback)

This book describes in twenty chapters the basic staining and other histochemical reactions commonly used when preparing biological material for light microscopy. It is assumed by the author that the reader has a knowledge of chemistry and biology, a little higher than that found in the last year University courses of North America, and the work appears to be written for those about to embark on a career in a histological laboratory, but this is not stated by publisher or author. The earlier part of the book deals with the fixation of tissue and the processing and mounting of sections, and does not discuss in any detail the techniques of embedding and section cutting. The longest chapter deals with the classification and chemical reactions of dyes and indicates their uses in histochemistry. Subsequent chapters deal with methods designed to demonstrate particular structures or substances. In each the basic chemistry is discussed and details of the individual methods described. Each chapter ends with a brief set of theoretical and practical exercises. Neurohistological techniques are considered separately and a

final chapter discusses basic immunochemistry.

Throughout this book the main concern of the author is with the basic chemistry of the techniques described. Little guidance is given in the choice of method for any particular purposes, and there is minimal concern with pathological conditions. Amyloid, for example, is only briefly mentioned in the section on glycoproteins and the reader referred to a standard work for details of the various staining techniques. However, for the student looking for insight into the chemistry behind many standard staining techniques, this work should prove valuable. It may also prove of use to the worker with little histochemical background who needs to use an histological technique as part of his researches. Both will find the bibliography referring to standard texts as well as a wide variety of original papers and review articles useful. To the beginner, the simple approach to complex chemistry will be welcome.

J.E. McLaughlin