Mechanisms of Platelet Activation and Control: Volume 344, Advances in Medicine and Biology; Edited by Kalwant S. Authi, Steve P. Watson and Vijay V. Kakkar, Plenum Press, New York, 1993; xiv + 272 pages. $79.50. ISBN 0-306-44631-6.

This book presents a compilation of review chapters emanating from papers presented at an International Platelet Symposium held at the Thrombosis Research Institute, Chelsea, London, in April 1992. Of the invited speakers, twelve were from Europe (including the UK), eight from North America and one from Japan. These speakers represent some of the top researchers in the world on the molecular mechanisms of platelet activation.

The book succinctly summarizes the present state of knowledge in this rapidly advancing field for both novices and those knowledgeable in the area. Almost every aspect of signal transduction in platelets is covered, including details of thrombin agonist receptors, G proteins, the regulation of phosphoinositide-specific phospholipase C, the role of cytoskeleton in regulating platelet function, and the mechanism of stimulation of cyclic nucleotide-dependent protein kinases, as well as the possible role of their substrates.

The book starts with a thoughtful and useful discussion by Dr. Michael C. Scrutton of the platelet as a Ca^{2+}-driven cell. This chapter sets the stage for many of the other chapters in the book. One learns about 'direct' response patterns, such as those induced by thrombin or PAF, 'adhesion-dependent' patterns as is characteristic of collagen as well as 'aggregation-dependent' patterns characterized by 'feed-forward' amplification loops involving the synthesis of thromboxane A_2 and the release of ADP. Not surprisingly, several of the concepts introduced in this chapter, such as the function of cytosolic Ca^{2+} in signal transduction, and the ability of factors such as diacylglycerol, G proteins, cAMP, and cGMP to modulate Ca^{2+}-driven responses, are returned to subsequently and in more detail by other contributors to the book.

Obviously, in this brief review, it is impossible to describe (or even mention) each individual chapter, or give credit to each of the chapter's authors. But, to highlight a few: Dr. Lawrence F. Brass and his co-authors provide an outstanding review of the recently cloned seven transmembrane domain thrombin receptor and of G proteins as mediators of platelet activation; Dr. Yoshininori Nozawa and his co-workers present an interesting paper on the regulation of phosphoinositide-specific phospholipase C in platelets; there are three chapters on calcium signalling in platelets; five chapters on the role of protein kinases and phosphatases in signal transduction (either from the point of view of activation or inhibition of platelet function); three chapters on the regulation of platelet function by the cytoskeleton, etc. It should be pointed out that these chapters have little overlap with each other, and in fact provide complementary information to the reader.

Another topic covered in the book that is worthy of mention is the role of rap1B in platelet function. Research on this subject is presented in three chapters in the book. This protein is present in platelets in high abundance and is phosphorylated on serine-179 by a cAMP-dependent protein kinase. Interesting arguments are given in each chapter regarding the significance of the phosphorylation of this protein and of its translocation within the platelet. However, the weight of evidence seems to suggest that the phosphorylation of rap1B is not related to inhibition of platelet responses by cAMP.

In summary, this focused compilation of chapters by top scientists involved in understanding the molecular mechanisms of platelet activation and control provides outstanding reading for anyone interested in the area. Clearly, the field has come a long way but the book reveals that there is still some way to go.

J. Bryan Smith

From Genetics to Gene Therapy; Edited by D.S. Latchman, BIOS Scientific Publishers; Oxford, 1994; xix + 261 pages. $99.00. ISBN 1-872748-36-8.

This monograph is the first in a UCL Molecular Pathology Series published under the auspices of the Department of Molecular Pathology of the University College London Medical School. The book is based on a December 1992 meeting, but also contains chapters especially commissioned for this volume.

The rapid advancement of the application of molecular biology in the understanding and treatment of human disease has led to the emergence of the field of molecular pathology. In this volume, exciting developments in this area "from genetics to gene therapy" are illustrated for individual diseases. The 13 chapters of this book, written by mainly British contributors, range from in-depth analysis of known disease genes, such as the genes for apolipoprotein B or dystrophin, over genes for X-linked immunodeficiency diseases, to a survey and assessment of more complex genetic components of diseases such as leukaemia, breast cancer or diseases of the nervous system, supplemented with chapters on gene transfer methodology. Although the volume is not intended to cover the complete field (e.g. there is no separate chapter dealing with cystic fibrosis), the editor should be complimented for the extent to which the unifying theme of employing genetic knowledge towards therapy has inspired the authors. What I find particularly appealing is the increasing level of genetic complexity through the book that indirectly may give the reader a feeling for the increase in understanding and therapeutic potential that further knowledge of the genes involved in particular diseases may bring.

The book is not free from the heterogeneity characteristic of symposium publications and some of the shorter chapters serve merely as an introduction to the literature. However, the inclusion of chapters that have been timely written specifically for this monograph, helps to make this overall a both useful and inspiring book.

This book may fulfill a need as an appetizer for molecular biologists who may wish to enter the field of molecular pathology and as a state-of-the-art manifestation of the power of molecular genetics for those working in clinical medicine.

Finn Skou Pedersen

Advanced Organic Chemistry of Nucleic Acids; Edited by Z. Shabarova and A. Bogdanov, VCH; Weinheim, 1994. xv + 588 pages. DM 248.00. ISBN 3-527-29021-4.

The book is a brave attempt to write *the* text book on nucleic acid organic chemistry. This is quite a formidable task in a broad and rapidly expanding field.

The book is divided into 11 chapters covering: 1, Structure of nucleosides; 2, Properties of nucleosides; 3, Structure of nucleotides; 4, Properties of nucleotides; 5, Primary structure of nucleic acids; 6, Determination of the primary structure of nucleic acids; 7, Conformation of nucleic acid components; 8, Macromolecular structure of DNA and RNA; 9, Chemical properties of polynucleotides; 10, Catalytic activity of nucleic acid; and 11, Synthesis of nucleic acids.

The text is a translation from Russian. Fortunately, however, it is only in a few places where this fact penetrates the language.

The material is presented in a traditional way with some emphasis on the historical development of the chemistry, but carries through to include state-of-the-art procedures both in pure chemistry as well as in more molecular biology-oriented applications.

Seen from an anglosaxon point of view, some of the material covered is 'Russian' in the way that the results have only to some extent appeared in the English literature. This is not necessarily a disadvantage since much very good organic chemistry, which is not yet appreciated in our part of the scientific society, has been done in Russia.

I found the book a rich source of factual information on nucleic acid

chemistry, frequently and conveniently tabulated. I also think that it will be very useful for teaching graduate courses.

In order for the book to be completely up to date, I would have preferred the authors to include some chemistry of oligonucleotide derivatives and analogues, as well as template-directed chemical synthesis and a wider coverage of chemical probing. These are rather minor objections, however, and I recommend the book for researchers doing nucleic acid chemistry or graduate courses.

Peter E. Nielsen

Control of Messenger RNA Stability; Edited by Joel G. Belasco and George Brawerman, Academic Press; San Diego, 1993; xviii + 517 pages. $79.95, £61.00. ISBN 0-12-084782-5.

A major factor in the control of protein synthesis is the availability of the relevant mRNAs. It is now well recognized that the steady-state level of mRNAs is determined not only by the regulation of transcription but also by control of their stability. In recent years much factual information has accumulated about factors influencing mRNA stability and degradation, but our current understanding of the mechanisms involved in the control of the degradative processes is as yet fragmentary. It is timely, therefore, to take stock, and this book succeeds in bringing together in a well-organized fashion a wealth of useful and detailed information.

The volume is divided into three sections dealing with prokaryotic mRNA (part I: 6 chapters), eukaryotic mRNA (part II: 11 chapters) and methods of analysis (part III: 1 chapter), the last section being intended to serve as an introductory guide for newcomers to the field. The first chapters of part I and part II, each written by one of the editors, give a useful overview of the topics covered in detail by specialists, and the final chapter by both editors presents a useful discussion of the experimental approaches and their limitations to the determination of mRNA decay. The individual specialist chapters of part I cover the following topics in detail: The role of the 3′ end in mRNA stability and decay; 5′ mRNA stabilizers; RNA processing and degradation by RNase K and RNase E; RNA processing and degradation by RNase III; Translation and mRNA stability in bacteria: a complex relationship. Part II deals with Hormonal and developmental regulation of mRNA turnover; Control of the decay of labile protooncogene and cytokine mRNAs; Translationally coupled degradation of tubulin mRNA; Iron regulation of transferrin receptor mRNA stability; Degradation of a non-polyadenylated messenger: Histone mRNA decay; mRNA turnover in *Saccharomyces cerevisiae*; Control of mRNA degradation in organelles; Control of poly(A) length; mRNA decay in cell-free systems; Eukaryotic nucleases and mRNA turnover. Each chapter is essentially self-contained and there is little overlap of any significance. The chapters are well referenced and there is an extensive index.

The book can be highly recommended to research workers in the field and anyone else interested in topics of current importance such as structural features which enhance mRNA stability or promote degradation, current knowledge of the importance of various degradative enzymes, the relationship between mRNA translation and decay and other aspects concerned with mRNA stability.

H.R.V. Arnstein