

Advances in Prostaglandin and Thromboxane Research: Volumes 3 and 4

Volume 3: Phospholipases and Prostaglandins

Edited by C. Galli, G. Galli and G. Porcellati
Raven Press; New York, 1978
218 pages. £18.60, \$28.60

Volume 4: Prostaglandins in Perinatal Medicine

Edited by F. Cocceani and P. M. Olley
Raven Press; New York, 1978
427 pages. £29.60, \$45.50

These admirable books maintain the high standards of presentation (and high price!) of the first two volumes of this series. Volume 3 is concerned with phospholipases and prostaglandins and contains 24 short papers presented at a meeting in Italy in 1977; volume 4 is more substantial and contains the proceedings of a conference on prostaglandins and perinatal medicine held in Toronto in March 1977. There are two review articles and 28 research papers as well as some general comments by the conference chairmen. In neither volume is there any edited discussion. Since most of the contributions are research papers, summaries would be most helpful and I would suggest that they be incorporated in subsequent books in this series. Both volumes are well produced with plentiful references and are indexed, although that of volume 3 is very skimmed.

I was very favourably impressed by the first two volumes (published in 1976), and indeed these latest additions will also give prostaglandin researchers a valuable source of reference on the specialist subjects considered. Nevertheless, it is wise to qualify this enthusiasm because I feel that this is probably not the best multi-volume series to recommend to the non-specialist. He might be better served by 'The Prostaglandins' (edited by P. W. Ramwell, Plenum Press) or 'Advances in Prostaglandin Research' (edited by S. M. M. Kaim, MTP Press), both of which are continuing series and which contain detailed review articles on selected topics.

It is now thought that an important rate-limiting step in prostaglandin biosynthesis is the release of polyunsaturated fatty acid precursors from membrane phospholipids. This is a relatively neglected area in the study of prostaglandin biosynthesis, perhaps because it is less amenable to simple and direct experimentation, and so these events are poorly understood

by comparison with the subsequent steps of oxygenation, endoperoxide synthesis and prostaglandin formation. Vogt provides a succinct and challenging review of some of the current ideas on the role of phospholipase A₂ in the initiation of prostaglandin synthesis, and several other authors in this volume show experiments suggesting that arachidonic acid is derived principally from phosphatidylinositol esterified at the 2 position, although other phospholipid stores may contribute. Evidence is presented that known triggers of prostaglandin biosynthesis, such as thrombin action on platelets or bradykinin infusion into the kidney, also cause the release of unsaturated fatty acids from prelabelled phospholipid stores. Flower shows that glucocorticoids inhibit this release in the anaphylactically-challenged guinea pig lung, and this may be the basis for the anti-inflammatory actions of these drugs.

All authors ascribe the release of these fatty acid prostaglandin substrates to 'phospholipase A₂-like' enzyme action, although there is some disagreement about the influence on this of cyclic nucleotides. Several other papers in this collection are concerned with the biochemical properties of sphingomyelinases and the various phospholipases and with their structure, mode of action, distribution and the importance of the physicochemical state of the substrate.

Volume 4 covers a much wider range of subjects as I have already suggested. Samuelsson and Vane both contribute long and detailed articles outlining the discovery and properties of thromboxanes and prostacyclin, respectively. These are excellent reviews and make exciting reading, despite the fact that this information is available elsewhere. Vane offers some interesting thoughts on the key role of endoperoxides and, more particularly, of prostacyclin and of the pharmacology of the aspirin-like drugs. The research papers

which make up the rest of this book are grouped, and include sections on synthesis and metabolism of prostaglandins in the placenta and during pregnancy, effects on organogenesis, actions on the central nervous system (this includes a detailed review of the controversial role of prostaglandins in fever by Veale and his colleagues) and effect and use of prostaglandins for the induction of labour.

A large proportion of this book is devoted to research on the effects of prostaglandins on the foetal cardiovascular system and on therapeutic applications

of this knowledge. The latter concerns the use of prostaglandin synthesis inhibitors such as indomethacin for the treatment of patent ductus arteriosus, and of prostaglandins themselves for maintaining ductus potency before surgery in several rare cardiac malformations of the newborn. Although these applications of prostaglandins seem rather esoteric, they suggest physiological roles at parturition for these ubiquitous substances and provide good examples of their potential usefulness.

J. R. S. Hoult

Advances in Cyclic Nucleotide Research: Volume 9

Edited by W. J. George and L. J. Ignarro
Raven Press, New York, 1978
831 pages. \$75.40

This latest volume in the *Advances in Cyclic Nucleotide Research* series contains the material presented at the Third International Conference on Cyclic Nucleotides held in New Orleans in 1977. The major part of the book is devoted to the papers presented by invitation at the meeting and this is followed by a smaller section which contains the abstracts of the material presented in the poster sessions. Most of the full-length papers contain sufficient introductory material, methodology and discussion to be of interest both to specialists in the field as well as to those with a more general interest in cyclic nucleotides.

The book is expensive (\$75.40) but this is to some extent offset by the breadth and depth of the information that is contained within its 800 pages. The editors are to be congratulated on the logical way they have arranged the contents. The synthesis of cyclic nucleotides is considered first with sections on adenylate and guanylate cyclase. The adenylate cyclase section contains important information on both the receptor and catalytic activities of adenylate cyclase and their regulation by hormones and calcium. The mode of action of cyclic nucleotides is covered in the

next section with a series of articles on cyclic AMP- and cyclic GMP-dependent protein kinases and phosphatases. This is followed by a section on cyclic nucleotide degradation by phosphodiesterases including articles on the roles of calcium and modulator proteins in regulating phosphodiesterase activity. The remainder of the lecture material is devoted to the ever-expanding field concerned with the roles and mode of action of cyclic nucleotides in regulating cell structure and function. The range of topics covered is impressive and includes muscle and central nervous system function, carbohydrate and protein metabolism, cell growth and division, secretion, vision and platelet function. The logical arrangement of contents helps to ensure that one can easily find material relevant to one's own research interests.

In summary, this volume provides an expensive but useful survey of the current research activities, methodology and insights into the cyclic nucleotides and their roles and modes of action as regulators of cell form and function, and as such it should be read by all those with a serious interest in cyclic nucleotides.

W. Montague

[edit] Biochemistry [edit] Biosynthesis Biosynthesis of eicosanoids. (series-2) Prostaglandins are found in most tissues and organs. They are produced by all nucleated cells except lymphocytes. They are autocrine and paracrine lipid mediators that act upon platelets, endothelium, uterine and mast cells. The fatty acids may be released by any of several phospholipases. Of these, type IV cytosolic phospholipase A2 (cPLA2) is the key actor, as cells lacking cPLA2 are generally devoid of eicosanoid synthesis. The phospholipase cPLA2 is specific for phospholipids that contain AA, EPA or GLA at the SN2 position. "Prostaglandins and Leukotrienes: Advances in Eicosanoid Biology". *Science* 294 (5548): 1871-1875. doi:10.1126/science.294.5548.1871. The prostaglandins (PG) are a group of physiologically active lipid compounds called eicosanoids having diverse hormone-like effects in animals. Prostaglandins have been found in almost every tissue in humans and other animals. They are derived enzymatically from the fatty acid arachidonic acid. Every prostaglandin contains 20 carbon atoms, including a 5-carbon ring. They are a subclass of eicosanoids and of the prostanoid class of fatty acid derivatives. *Phospholipases and Prostaglandins* book. Read reviews from world's largest community for readers. Original Title. *Phospholipases and Prostaglandins (Advances in Prostaglandin and Thromboxane Research : Vol 3)*. ISBN. 0890042012 (ISBN13: 9780890042014). Edition Language. English. Other Editions. None found. Prostaglandins affect reproductive processes and are also thought to play a major role in promoting and resolving inflammation in the body. While most hormones are released by a gland and then carried throughout the body in the bloodstream, prostaglandins are not. Rather, they're produced at the area of the body where they're needed. *Prostaglandins and Reproduction*. Although more research is needed to fully understand the role of prostaglandins in reproduction, it's known that they're present in the body throughout a woman's menstrual cycle. During your period, prostag... The prostaglandins. Volume 3. A Continuation Order Plan is available for this series. A continuation order will bring delivery of each new volume immediately upon publication. Volumes are billed only upon actual shipment. For further information please contact the publisher. *THE PROSTAGLANDINS. VOLUME 3* Edited by Peter W. Ramwell. Department of Physiology and Biophysics Georgetown University Medical Center Washington, D. C. Plenum press new york and london. The Library of Congress cataloged the first volume of this title as follows: Ramwell, Peter W *The prostaglandins*. Edited by Peter W. Ram