

Prostaglandins and Thromboxanes

Edited by R.F. Newton and S.M. Roberts

Butterworth Scientific; Boston, London, Sydney, 1982

xii + 144 pages. £15.00

According to the editors, the 'charisma and potential of the prostaglandin field have never been greater'. This is why they offer this brief but palatable compendium of methods for chemical synthesis of prostaglandins and related compounds such as prostacyclin and thromboxanes. A very large number of organic chemists in both industrial and academic laboratories have taken up the challenge of making naturally-occurring prostaglandins by feasible routes in useful quantities and in trying to devise modified analogues with greater selectivity of action, so it is useful to have a handy summary of the various synthetic approaches. In theory, analogue development might lead to therapeutically useful compounds. To date plenty of synthetic prostaglandins have yielded promising results in animal screening tests – but as pointed out in this book most have been rather disappointing in preliminary tests in humans.

This book is one of a series of Butterworth's Monographs in Chemistry and is very attractively produced. It succeeds well in its intention of covering the basic synthetic strategies in an accessible format: they are clearly set out with structures, reagents and theory clearly identified, but without the encumbrance of full details (in most cases references to these are given). Seven of the ten chapters are devoted to synthetic procedures; in general the authors have very sensibly tried to emphasise the principles and thinking behind the chosen strategies and this will be very helpful for students and for researchers toying with new ideas. For a pharmacologist such as myself this highlights the remarkable ingenuity of the organic chemists, particularly the cunning approaches needed to achieve stereospecificity.

The first three chapters are designed as a brief general introduction. They cover the nomenclature, synthesis and metabolism, pharmacology and potential uses of prostaglandins. On the whole they succeed admirably, despite their brevity. Of course, summing up the actions and pathophysiological involvement of prostaglandins in just 16 pages necessarily means that many interesting aspects must be skimmed (think how many large symposia have been devoted to just one aspect of prostaglandin pharmacology!), but there are few serious over-simplifications and only a few overt errors (i.e., p.13, rabbit kidney contains a novel 9-hydroxydehydrogenase; p.26, aggregating activity of endoperoxide in platelets is due to conversion into thromboxane A₂). All in all though, this chapter is very well written and can be recommended as a good introduction to anyone new to the field.

My main quibble with this book is that its brevity necessarily means that experimental data and evidence have been omitted. This is a pity because chemists (for whom this book must primarily be intended) would be able to get much more of a feel for the end result of their labours if examples of biological actions were given. Otherwise the biology almost becomes an afterthought. I also dispute the claim in the back cover blurb that the book 'reviews authoritatively the ... biological research that has been carried out on these naturally-occurring compounds.' This identified precisely the area of weakness in this otherwise useful summary of procedures for prostanoid synthesis.

J.R.S. Hoult