

Additions and Corrections

Analysis of Rates of Multiple Enzymes in Cell Lysates by Electrospray Ionization Mass Spectrometry [*J. Am. Chem. Soc.* **1999**, *121*, 1102–1103]. SCOTT A. GERBER, C. RONALD SCOTT, FRANTISEK TURECEK,* AND MICHAEL H. GELB*

An asterisk was inadvertently misplaced in the list of authors in the print edition, which should have read as follows: Scott A. Gerber, C. Ronald Scott, Frantisek Turecek,* and Michael H. Gelb*.

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Book Reviews

The Chemistry of Organic Silicon Compounds, Vol. 2, Parts 1, 2, and 3. Edited by Z. Rappoport and Y. Apeloig. Wiley & Son, Inc.: New York. 1998. xxiii + 2758 pp. \$1650.00. ISBN 0-471-96757-2.

While organosilicon chemistry has blossomed forth during the past quarter of a century, and many books and review articles have documented the exponential growth, this series from the renowned "Patai" venue is truly encyclopedic. There are 43 chapters which cover all aspects of the structure and chemistry of organosilicon compounds from synthetic applications to theoretical treatments. There is something for all flavors of chemistry. Considering the vast scope and large number of contributing authors, the overall quality is very high, and in keeping with the scholarly tradition of the functional group series. This important section of the series is a vital "must-have" for any university library, although, unfortunately, the considerable price probably precludes the volumes from gracing the shelves of most academic offices.

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Aspartic Proteinases; Retroviral and Cellular Enzymes. Advances in Experimental Biology and Medicine 436. Edited by M. N. G. James (University of Alberta). Plenum Press: New York. 1998. \$139.50. xvii + 499 pp. ISBN 0-306-45809-8.

This volume contains the proceedings of the VIIth International Conference on Aspartic Proteinases held in the Fall of 1996 in Banff, Alberta, Canada, organized by the editor. Approximately 100 presentations were made by investigators from 14 countries. Of these, two-thirds are published here. The foundations of aspartic proteinase research began with the classic biochemical work on the digestive enzyme pepsin. The field has developed with strong bases in X-ray crystallographic structure, enzymology, and protein chemistry. To these have been more recently added the tools of molecular biology. The book opens with a historical overview by T. L. (now Sir Tom) Blundell.

Perusal of the proceedings of previous international conferences in this series shows an enormous growth in the study of the retroviral proteases, particularly that of HIV. The existence of such dimeric proteases was predicted on theoretical grounds in 1978 and confirmed a decade later. A variety of protease inhibitors are now in clinical use and have fundamentally improved the prognosis for patients infected with HIV in the industrialized countries. Seventeen articles, many from researchers at pharmaceutical companies, detail the state of the art in this now mature field, including the rational design of protease inhibitors and the common pathways of viral mutation to resistance to particular inhibitors.

Fourteen chapters are devoted to the mammalian aspartic proteinases, including cathepsins D and E and chymosin. Lacking are many articles on pepsinogen and its genetic role in human gastric disease and on renin, which contributes to blood pressure regulation by conversion of angiotensinogen to angiotensin I. The clinical success of ACE inhibitors which act downstream of renin has stifled interest in this aspartic proteinase. Described here are the fascinating but little understood (functionally) aspartic proteinases expressed in the placenta. In some mammals these genes are extensively duplicated. This section and the next, on the activation of the aspartic proteinase proenzymes, include work on the intracellular processing and compartmental sorting of several of the proteases.

A number of aspartic proteinases catalyze specific cleavages of caseins and are central to cheese making. Such enzymes are isolated from microbial and plant as well as mammalian sources, including recombinant chymosin. In addition several microbial aspartic proteinases are targets for the design of antifungal drugs. Another area of present growth is the investigation of parasitic proteinases, particularly the plasmepsins of *Plasmodium falciparum*. These are also targets for the design of proteinase-inhibitory drugs. Initial descriptions of aspartic proteinases in prokaryotes suggest that this area will expand in the future.

The final section of the volume describes work on plant proteinases. Elegant work from Portugal describes enzymes from cardoon, a relative of thistles and artichokes, which are used in the manufacture of artisanal cheeses. Several of the genes have been cloned and the crystal structures of the proteins solved. A fascinating report from workers in Sri Lanka and Japan describes the purification and biochemical characterization of a secreted proteinase from *Nepenthes distillatoris*, an insectivorous plant.

The book is unable to reproduce more than a few of the many excellent color slides of crystal structures and models shown at the meeting. However, the articles are of a uniformly high scientific quality, and most contain sufficient introductory material to make them accessible to the general reader. A useful index is provided, and the editor has been successful in converting the submissions from a variety of computer disk formats with only a few Greek characters, etc., gone astray. The research results presented are no longer hot from the bench, but this book provides a valuable and readable introduction to present areas of research on a protease gene family with a variety of intriguing biological functions in plants, animals, and microbes.

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