

unable to transport them. Chemical formulae of the ionophores are collected in the supplement, the reference list containing over 300 entries.

Being for many years among the leading experts in the crystallographic studies of ionophores the author paid considerable attention to X-ray work. All the structures are shown in beautiful stereo pictures. A unique feature of the book are the tables of three-dimensional atomic coordinates of all structures discussed in the text.

'Wet' chemistry is given (understandably) somewhat less attention. Some omissions are noted in that part: a wrong formula of alamethycin (pp. 11 and 259, cf. *Biochem. J.* 153, 181) misleading configurational assignment in gramicidin A (formula on p. 258), outdated description of

valinomycin structures in solution (section 6.1, cf. *Eur. J. Biochem.* 78, 63), absence of important data on enniatins in solution (*Int. J. Pept. Prot. Res.* 6, 465) and in the crystal (*FEBS Lett.* 65, 315).

The above does not alter the fine overall impression of the book. The overwhelming bulk of material is presented in a competent and critical way. At the same time professional jargon is practically absent and the style of writing is clear and lucid. The book will be comprehended and appreciated by the experts using ionophores for biochemical studies as well as by a much broader circle of readers interested in modern developments in physico-chemical biology.

V.T. Ivanov

Peptide Antibiotics — Biosynthesis and Functions

Edited by H. Kleinkauf and H. von Dohren

Walter de Gruyter; Berlin, New York, 1982

xii + 480 pages, DM 190

This book is, in the main, a compilation of the contributions to the first symposium on the enzymatic biosynthesis of peptides held in Berlin in 1980. Some contributions have been extended and other invited articles are included.

The 39 separate contributions have been grouped by the editors into five sections. In the first section, an introductory review on peptide synthetases by the editors is followed by a discussion by F. Lipmann on his seminal work on the cyclic antibiotics gramicidin S and tyrocidine and of linear gramicidin.

Pathways in which the individual enzymes have yet to be characterised are discussed in the papers in the second section. The synthesis of the poly(γ -D-glutamyl) capsule in *Bacillus licheniformis*; the use of cell-free systems and of mutants in penicillin and cephalosporin synthesis, and the biosynthesis of mycobacillin are discussed here.

Section three deals with the use of fermentation techniques in the production of various peptide antibiotics. The main part of the book, section four,

deals with the enzyme systems involved in the synthesis of the peptide antibiotics. This section accounts for nearly half of the book and includes nine papers on gramicidin S-synthetase and ten papers on the enzymes involved in the synthesis of enniatin; polymyxin E and gramicidin A; bacitracin; edeine; leupeptin; carnosine and related peptides; and *Corynebacterium* species folylpoly- γ -glutamate synthetase. A short description of a round-table discussion on the problems and properties of peptide synthetases concludes this section.

The final section tackles the thorny problem of the possible functions of the peptide antibiotics in the organisms producing them.

This book, arising as it does from papers given at an international conference, is aimed at the specialist reader with research interests in enzymic processes involved in synthesising peptide antibiotics. Its price will probably put it beyond the reach of most personal libraries.

D.W. Young

Yonath, A. (2007). Ribosomal crystallography: peptide bond formation, chaperone assistance, and antibiotics inactivation. In: NATO Security through Science Series, Structure and Biophysics, New Technologies for Current Challenges in Biology and Beyond, J. D. Puglisi, ed. (Springer) 127-153.

Harms, J., Schluenzen, F., Fucini, P., Bartels, H. and Yonath, A. (2004). Alterations at the peptidyl transferase center of the ribosome induced by the synergistic action of the streptogramins dalbapristin and quinupristin, *BMC Biol*, 2, 4;1-10; PMID:15059283.

Agmon, I., Amit, M., Auerbach, T., Bashan, A., Baram, D., Bartels, H., Berisio, R., Greenberg, I., Harms, J., Hansen, H. A.S, Kessler, M., Pyetan, E., Schluenzen, F., Sittner, A., Yonath A. and Zarivach, R. (2004). Antibiotic, antiviral, antifungal, and antiyeast activities of these organisms had been reported. Besides, a few growth stimulant properties which may be useful in studies on wound healing, carcinogenic properties, and in the study of cancers are reported. Among the many bacteria showing antimicrobial activity, a variant of the ichthyotoxic *Pseudomonas piscicida* exhibited marked antagonism to various micro-organisms. Antimicrobial peptides (AMPs) are ubiquitous, gene-encoded natural antibiotics that have gained recent attention in the search for new antimicrobials to combat infectious disease. In multicellular organisms, AMPs, such as defensins and cathelicidins, provide a coordinated protective response against infection and are a principal component of innate immunity in vertebrates.

De Vuyst, L and Leroy, F (2007). Bacteriocins from lactic acid bacteria: production, purification, and food applications. Porcine host defense peptides: expanding repertoire and functions.

No HTML tags allowed - Web page URLs will display as text only - Lines and paragraphs break automatically - Attachments, images or tables are not permitted. Please enter your response. Your details. Biosynthesis and Function, H. Kleinkauf, H. von Dohren eds. de Gruyter, Berlin 1982, pp 84-100 [Pg.225]. A similar approach is employed in the formation of peptides such as peptide antibiotics (see Box 13.11).

H Kleinkauf, H von Dohren. Nonribosomal biosynthesis of peptide antibiotics. *Eur J Biochem* 192 1-15, 1990. Whether the condensation domains have any editing function has been unknown. Synthesis of aminoacyl-CoA molecules and direct enzymatic transfer of aminoacyl-phospho-pantetheine to the carrier domains allow the adenylation domain editing function to be bypassed. Elucidation of the biosynthetic mechanisms of gramicidin S (Kleinkauf and Gevers, 1969; Kleinkauf and Koischwitz, 1980; Kurahashi, 1974; Kurahashi et al., 1969; Laland and Zimmer, 1973; Lipmann) Katz E, Demain AL (1977) The peptide antibiotics of *Bacillus*: chemistry, biogenesis, and possible functions. *Bacteriol Rev* 41:449-474 PubMedGoogle Scholar. Kleinkauf H (1979) Antibiotic polypeptides-biosynthesis on multifunctional protein templates. *Planta Med* 34:1-18 Google Scholar. Kleinkauf H, Gevers W (1969) Nonribosomal polypeptide synthesis: the biosynthesis of a cyclic peptide antibiotic, gramicidin S. *Cold Spring Harbor Symp Quant Biol* 34:805-813 PubMedGoogle Scholar.