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 J. 153, 181) misleading configurational assignment in gramicidin A (formula on p. 258), outdated description of valinomycin structures in solution (section 6.1, cf.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 funtions 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

Â· 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) 127â€“153.Â Â· 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 dalfopristin and quinupristin, BMC Biol, 2, 4;1-10; PMID:15059283. Â· 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.75 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 piscicida75 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.Â De Vuyst, L and Leroy, F (2007). Bacteriocins from lactic acid bacteria: production, purification, and food applications.Â Porcine host defense peptides: expanding repertoire and functions.Â - 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).Â H Kleinkauf, H von Dohren. Nonribosomal biosynthesis of peptide antibiotics. Eur J Biochem 192 1-15, 1990.Â 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 caiiier 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; LipmannÂ Katz E, Demain AL (1977) The peptide antibiotics of Bacillus: chemistry, biogenesis, and possible functions. Bacteriol Rev 41:449â€“474PubMedGoogle Scholar. Kleinkauf H (1979) Antibiotic polypeptides-biosynthesis on multifunctional protein templates. Planta Med 34:1â€“18Google Scholar. Kleinkauf H, Gevers W (1969) Nonribosomal polypeptide synthesis: the biosynthesis of a cyclic peptide antibiotic, gramicidin S. Cold Spring Harbor Symp Quant Biol 34:805â€“813PubMedGoogle Scholar.

Start by marking â€œPeptide Antibiotics Biosynthesis and Functions: Enzymatic Formation of Bioactive Peptidesand Related Compoundsâ€ as Want to Read: Want to Read savingâ€¦ Want to Read.Â Weâ€™d love your help. Let us know whatâ€™s wrong with this preview of Peptide Antibiotics Biosynthesis and Functions by Horst Kleinkauf. Problem: Itâ€™s the wrong book Itâ€™s the wrong edition Other. The multiple carrier model of nonribosomal peptide biosynthesis at modular multienzymatic templates. J Biol Chem 1996; 271: 26: 15428-435. 8. Lipmann F., Gevers W., Kleinkauf H. et al. The enzymatic synthesis of gramicidin S and tyrocidine. Adv Enzimol 1971; 35: 1-34. 9. Laland S.G., Zimmer T.L. The protein thiotemplate of mechanism of synthesis for the peptide antibiotics produced by Bacillus brevis.Â 65. Eppelmann K., Doekel S., Marahiel M.A. Engineered biosynthesis of the peptide antibiotic bacitracin in the surrogate host Bacillus subtilis. J Biol Chem 2001; 276: 37: 34824-34831. 66. Gruenewald S., Mootz H.O., Stehmeter P., Stachelhaus T. In vivo production of artificial nonribosomal peptide products in the heterologous host Escherichia coli. Biosynthesis and function of secondary metabolites. Edited by Jeroen S. Dickschat. Generated on 04 May 2021, 12:49.Â Biosynthesis of peptides and polyketides in microorganisms. Microbial natural products of the peptide class are produced by two types of biosynthetic pathways: By giant multi-domain enzymes, the nonribosomal peptide synthetases (NRPS) or by ribosomal synthesis and subsequent post-translational modification and processing. NRPS consist of modules, each being re-sponsible for the incorporation of a single amino acid. Peptide Antibiotics. Robert E. W. Hancock, Daniel S. Chapple. Robert E. W. Hancock.Â Biosynthesis.A large amount of information has shown that nonribosomal peptide synthesis is performed according to the multiple-carrier thiotemplate mechanism (40). In this template-driven assembly, a series of very large multifunctional peptide synthetases, with a modular arrangement, perform the peptide synthesis in an ordered fashion.Â Structure-function relationship of antibacterial synthetic peptides homologous to a helical surface region on human lactoferrin against Escherichia coli serotype O111. Infect. Immun.