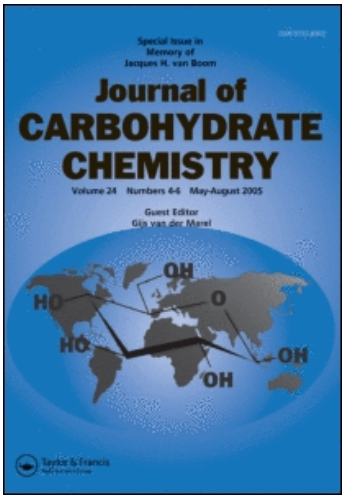

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Enediyne Antibiotics as Antitumor Agents

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BOOK REVIEW

Enediyne Antibiotics as Antitumor Agents. By Donald B. Borders, Terrence W. Doyle Eds., Marcel Dekker, Inc. New York, 1995, 459pp +index. $ 165.00. ISBN 0-8247-8938-5.

This book on a new class of antitumor antibiotics, consisting of eighteen chapters, is an extensive compilation of new developments in the fast growing field of synthetic medicinal chemistry of antitumor agents. The editors are to be congratulated for drawing together these new developments in an extremely comprehensive way.

The extremely useful introductory chapter entitled, "Enediyne Antitumor Antibiotics" written by the editors introduces readers to all classes of enediyne antibiotics. This introductory chapter is concerned primarily with the chronologic history of the discovery of the above classes of compounds and some strategies for their future developments.

The book is divided into five parts. Part one, entitled, "Calicheamicins", consists of eight chapters. The first two chapters, Chapter 2, by Greenstein and coauthors and Chapter 3, by Fantini and Testa deal with the biochemical induction assay, taxonomy and fermentation. Chapter 4, by Lee describes identification, isolation and structure determination. Chapter 5, by McGahren and coworkers deals with disulfide Calicheamicins and the chemistry of the allylic trisulfide group. Chapter 6, by Hinman, Hamann and Upeslacis, describes highly specific topics on preparation of conjugates to monoclonal antibodies. Chapter 7, by Rothstein, provides information on the genetic analysis of calicheamicin biosynthesis. Chapter 8 summarizes all biological activities of calicheamicin. Chapter 9, by Ellestad and coauthors, describes DNA- cleaving properties of calicheamicins.

The second part of the book entitled "Esperamicins" consists of five chapters. Chapter 10 by Lam and Forenza provides detailed information on fermentation and isolation of esperamicins. Chapter 11, by Golik, as one of the most important, deals with the various techniques of structure determination of esperamicins. Chapter 12, by Lam and Veitch details the biosynthesis of esperamicin. Chapter 13, by Langley describes mechanism of action and molecular modeling for esperamicin, calicheamicin and dynemicin. Biological properties of esperamicin and other enediyne antibodies are topics of Chapter 14, by Casazza and Kelley.

The third part of the book entitled "Dynemicins" contains only Chapter 15, by Konishi and Oki, which is concerned with the chemistry and isolation, structure determination, biological activity and mechanism of action of the above class of antibiotics.

The fourth part of the book entitled, "Neocarzinostatin" consist of two chapters. Chapter 16, by Goldberg and Kappen focuses on chemical and biological effects of oxidative DNA damage by neocarzinostatin. Chapter 17, by Maeda, describes clinical effects of neocarzinostatin and its polymer conjugate SMANCS.

The fifth and the last part of the book entitled "Synthetic Methodologies" contains only Chapter 18. This final chapter entitled "Synthetic Studies of the Enediyne Antibiotics" is well written by Halcomb. It is an extensive and detailed compilation of 56 pages on various synthetic methodologies for the formation of the C-C bond and coupling of sugar precursors with heterocyclic fragments into one complex molecule. This excellent review serves as a fundamental introduction to the chemistry of this fascinating group of antibiotics.

The book concludes with an extensive subject index (19 pages). The organization, unification and presentation of the material is highly commendable and overall, the book is well produced and free of any obvious errors.

This book provides a fundamental knowledge on various aspects of enediyne antibiotics. For that reason it will be an indispensable reference source for any researcher in this field. It should be a valuable and essential addition to institutional, as well as personal libraries of scientists engaged in research on the biochemistry and chemistry of new antibiotics, especially in the emerging field of antitumor agents.

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