Book Reviews

Function and Structure of the Immune System. Edited by W. Müller-Ruchholtz and H. K. Müller-Hermelink. Plenum Press, New York and London. 1979. 17 × 25.4 cm. xxii + 850 pp. $75.00.

This volume includes papers on various aspects of the immune system presented at the VI International Conference on Lymphatic Tissues and Germinal Centers in Immune Reactions. Over 100 brief papers are divided into four major sessions.

The first session reviews and presents new insights into (i) lymphoid cell differentiation and traffic, (ii) immunological function of cell surface structures, (iii) immunological tolerance, (iv) in vivo relevance of nonlymphoid cells in the immune reaction, and (v) soluble mediators of immunity. Each section is well organized and inclusive with a clearly relevant introduction and critical summary. Each individual paper both in this and latter sessions presents a clear and concise description of the work done. One noteworthy observation is that each presentation, while not overly burdened with detailed methods, attempts to focus on the significance and relevance of the work done. The reader is referred to other more lengthy articles for specific methods.

The other sessions update areas in clinical immunology. Specific topic sessions include (i) functional and morphological aspects of malignant lymphomas, (ii) immunopathology of parasitic diseases, (iii) immunological reactions and immunotherapy of malignant diseases, and (iv) immunoprophylaxis and therapy of infectious diseases. Like the first session, these topics are well-organized and the authors all attempt to present a clear and concise summary of their work. The authors present relevant points and draw specific conclusions, and all avoid an excessive introduction, methods and discussion section.

G. J. V. Nossal in his general summary expresses criticisms which are fitting both to these proceedings and to the state of current knowledge in the broad field of immunology. One striking point he makes is that, while our knowledge of the basic function of the immune system has increased greatly in the past 2 decades, advances in clinical medicine in such areas as cancer, organ transplantation, and other immunological diseases have made limited progress.

It is apparent that great care went into the organization of these proceedings. Researchers will find them an excellent supplement to the current literature.

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An Introduction to the Chemistry and Biochemistry of Pyrimidines, Purines, and Pteridines. By Derek T. Hurst. Wiley, New York. 1980. viii + 266 pp. 16 × 23.5 cm. $39.00.

The author approached and solved in his book the interesting problem of describing and discussing, out of the numerous heterocyclic ring systems, three naturally occurring and structurally related nitrogen heterocycles—the pyrimidines, purines, and pteridines. These compounds are of great importance for their chemical, biochemical, medicinal, and biological activity.

An introduction to nitrogen heteroaromatic chemistry in general, as well as detailed information about fundamental principles governing the chemistry of pyrimidines, purines, and pteridines, is presented. The historical development of these fields are mentioned, and synthetic approaches, reactivities, and physical properties are discussed. In a similar manner, the structurally more complex nucleosides and nucleotides are discussed, including nucleoside antibiotics as well as nucleotide coenzymes and related compounds. An introduction to the vitamin B group is also given in this connection, and biological phosphorylating agents are mentioned followed by a short chapter concerned with the activation by dinucleotide formation and adenyl transfer.

The second half of the book is much more biochemically orientated and includes the biosyntheses of the pyrimidine and purine nucleotides, respectively, as well as their catabolisms. The importance of folic acid in 1-carbon unit transfer reactions is mentioned, together with the physiological role of sulfonamides. Another chapter is concerned with the various nucleic acids, their structures, their chemical and enzymatic degradation, their replication, and the transcription of the genetic information. It follows a description of the various events at the ribosomes, such as translation, steps in protein synthesis, recognition between codon and anticodon, chain termination, and comments to the problem of mutation and mutagenes. The various aspects of carcinogens and cancer chemotherapy are another subject of interest. In the last chapter, nitrogen heteroaromatic pharmaceuticals are mentioned in a large number of examples revealing the importance of pyrimidines, purines, pteridines, and related compounds as pharmaceuticals and agrochemicals from a physiological and technical point of view.

The book will be of great value to chemists, biochemists, and pharmaceutical and medical chemists and can be recommended to this group due to its broad coverage of many important aspects and combined with a comprehensive literature survey. The advanced graduate student will also profit from this book, if he is interested in an education and in research efforts of a more interdisciplinary nature.

Besides a few misprints on pages 88, 90, 95, 143, and 150, only the decision to prefer the "iminol" over the "lactam" nomenclature is unfortunate, since especially the younger students and nonheterocyclic chemists may encounter difficulties in understanding the problem of tautomerism in this field. In a second edition this change is recommended, as well as the correction of the hydroxylation mechanism on page 150 and the biosynthetic scheme of folic acid on page 169.

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