New Books

J.F. Gerecht, Book Review Editor

Methods in Enzymology, Vol. XXXV Lipids Part B, Edited by John M. Lowenstein (Academic Press, NY, 654 p., 1975, $34.50).

This volume is divided into nine sections and each section maintains the level of excellence which is characteristic of this series. Section I, on Fatty Acid Synthesis, stresses the methods used to isolate acetyl-CoA carboxylase and the component parts of this enzyme as well as procedures for the isolation of fatty acid synthetase. Section II, on Fatty Acid Activation and Oxidation, discusses the isolation and methods of assay for the following four enzymes: long chain acyl-CoA synthetase, L-3-hydroxyacyl CoA dehydrogenase, 3-keto-acyl thiolase and crotonase. The next section on HMG-CoA enzymes has three units devoted to purification and assay of 3-hydroxy-3-methyl-glutaryl-CoA synthase as well as methods for purification and assay of acetoacetyl thiolase. Sections IV and V are entitled respectively "Hydrolases" and "Miscellaneous Enzymes." The discussion of the desaturation of long-chain fatty acids by animal liver and the treatise on purification of phospholipid exchange proteins from beef heart probably are the two topics of most general interest in these sections.

Section VI on General Analytical Techniques discusses a variety of techniques including methods for the determination of acetate, malonyl-CoA, long chain fatty acyl-CoA's, stereoisomers of 2- and 3-hydroxy fatty acids, the positional distribution of fatty acids in glycerolipids, the amount of protein in lipid extracts and methods for measuring, rates of lipogenesis with deuterated or tritiated water. The applications of mass spectrometry, as employed for structural elucidation of perdeuterated fatty acids, triglycerides and prostaglandins, are also clearly outlined. The discussion on immunology of prostaglandins is most timely in view of the increased emphasis now placed on determining levels of prostaglandins in tissues. Additional units in this section review the use of lipophilic sephadex, as employed for fractionating a number of different lipid mixtures, and the use of thin layer chromatography for fractionating neutral glycosphingolipids.

Section VII, entitled "Synthesis and Preparation of Substrates," contains 120 pages. In this section 100 pages are devoted to an excellent comprehensive review of methods for the chemical synthesis of phospholipids.

The final two sections are entitled respectively "Preparation of Single Cells" and "In vivo and Perfusion Techniques." Methods for isolation of single cells from brown and white fat cells, different brain cells, and rat liver hepatocytes are discussed. Perfusion techniques are discussed for liver and fat cells.

Since this book discusses a variety of techniques, isolation procedures, and organic synthetic methods, it will be of general interest to a broad spectrum of investigators engaged in lipid research. It is very valuable reference for all lipid enzymologists.

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Analytical Chemistry of the Condensed Phosphate, S. Greenfield and M. Clift (Pergamon Press, Oxford, England 1975, 195 p., $14.40).

This book should be a welcomed reference to all investigators of systems containing phosphates. The book is well organized and supplies an abundance of background information. Approximately one-quarter of the book is devoted to the properties and preparation of poly- and metaphosphates.

Chapters 2 through 7 review the more or less classical methods employed in the analyses of inorganic phosphates while Chapter 8 deals with phosphate esters. Chapter 9 is entitled "*Modus Operandi*" and presents approaches to the analyses of phosphates in complex mixtures. The final section, Chapter 10, presents a few selected preparations of pure phosphates.

The major shortcoming of the volume is one of omission. Ultraphosphates and acid metaphosphates are only mentioned and the analytical techniques covered in the book are inadequate to handle these systems. The very useful analyses for water of crystallization, water of constitution, and free water are also omitted. Nevertheless, this is a good book and is recommended.

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