

Cholesterol Metabolism and Lipolytic Enzymes

Edited by J. Polonovski
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212 pages. £21.00.

Because of their abundance in animal organisms, cholesterol and bile acids have for long attracted attention. Thus, the first analysis of cholesterol was reported 150 years ago. One hundred years passed before the structures of these similar lipids were determined. Fifty years later, on reading this book, it is perhaps surprising to realise how much remains to be done to achieve a fuller understanding of the biosynthesis and biological roles of cholesterol and the bile acids. One might well enquire whether the study of these substances receives adequate attention.

It appears that very early in evolution, the use of the stable steroid ring structure proved a successful rig for the assembly of functional groups. Molecules provided by these assemblies have a wide variety of uses in animals. The explanations of their association, as hormones, with protein, with these and with other lipids as plasma lipoproteins and in the complex dynamic structures of cell membranes, are among the most challenging problems of modern biology and medicine.

Thus, the publication of this collection of fourteen essays, presented at the 19th International Congress on the Biochemistry of Lipids in 1976, is an important event. No similar collection has appeared for some time. Half the essays deal with the biosynthesis, transport and metabolism of cholesterol and bile acids. One describes the interactions of serum lipoproteins with human endothelial cells, and the remainder discuss esterification with lecithin: cholesterol aminotransferase and lipolytic enzymes. Contributors are drawn from among leading investigators in lipid biochemistry. What they have written makes clear and fascinating reading.

Excellent reviews of different aspects of cholesterol biosynthesis and metabolism are presented by Avigan, Gould, Mosbach and by Boyd and his co-workers. The last may try to do a little too much in the space

available. For example, their schematic view of a possible effect of ACTH on the adrenocortical cell does not account for all observations. Nicolas Myant's description of the metabolic lesion in familial hypercholesterolaemia will appeal on account of its simplicity. Bergström offers a short, clear explanation of the lipase—colipase—bile salt system. The Fieldings consider how lipase co-protein activates lipoprotein lipase. The chapter by Scow et al. on the transport of lipid across capillary endothelium contains good electron micrographs and clear line drawing and is an enjoyable account of mechanical barriers to lipid movement. Accounts of the enterohepatic circulation of bile acids by Alan Hofmann and of the dynamics of cholesterol in the rat by Francois Chevallier are less easily followed. It is difficult to comprehend the large amounts of detail in the figures in these essays.

The book could have been improved by more careful editing. One must read all the essays right through and then re-read them. Some later essays have better descriptions and definitions. Thus, the nomenclature of lipoprotein apoproteins tends to be confusing. A glossary of terms and abbreviations would have helped. The listing of references is slightly unusual and a little difficult to use. In one chapter, the list is alphabetical, in the others it is numerical. A few printing errors have slipped through (e.g., p. 141). There is no index.

Despite these quite minor criticisms, the book as a whole makes enjoyable and rewarding reading. Relatively new concepts such as the circadian variation in the activity of enzymes and the obvious need for more work at many points are stimulating. This book should be both interesting and helpful to biochemists and medical scientists teaching and researching in the field of lipids and some of their associated diseases.

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