



BOOK REVIEWS

PII: S0960-0760(98)00013-2

Subcellular biochemistry. Vol. 28: Cholesterol: its functions and metabolism in biology and medicine. J.R. Harris, R. Bittman. Published 1997 by Plenum Press, New York. 576 pages. ISSN: 0306-0225. ISBN: 0-306-45478-5US \$139.50.

The topics in this volume cover cholesterol from A to Z. The role of cholesterol as a normal metabolic constituent of biological membranes and the pathological consequences of its metabolic mismanagement are described. Cholesterol is required for normal cell growth and proper membrane structure and function, but its unregulated accumulation is cytotoxic, and failure to maintain homeostasis of the sterol results in a number of pathological states. Among the diseases covered in this book are: atherosclerosis, gallstone disease, Niemann-Pick C disease, Schnyder's corneal crystalline dystrophy, sitosterolemia, the Smith-Lemli-Opitz syndrome, and tumor proliferation. Each chapter contains many citations to recent literature, reflecting the activity in the rapidly advancing field of the biological and health-related functions of cholesterol, and presenting a challenge for us to increase our understanding of the diverse functions of cholesterol in biology and medicine.

The following chapters are included:

- Signaling molecules derived from the cholesterol biosynthetic pathway.
- Coordinate regulation of cholesterol 7 α -hydroxylase and HMG-CoA reductase in the liver.
- Polyprenyl diphosphate synthases.
- Antifungal sterol biosynthesis inhibitors.
- The Smith-Lemli-Opitz syndrome: a potentially fatal birth defect caused by a block in the last enzymatic step in cholesterol biosynthesis.
- Has Nature designed the cholesterol side chain for optimal interaction with phospholipids?
- Cholesterol and myelin.
- Regulation of mitochondrial cholesterol metabolism.
- Lipoproteins and cellular cholesterol homeostasis.
- Cholesterol-sphingomyelin interactions in cells; effects on lipid metabolism.
- Mechanisms and (patho)physiological significance of biliary cholesterol secretion.
- Cholesterol deposition in atherosclerotic lesions.
- Cholesterol metabolism and tumor cell proliferation.
- Biological implications of the Niemann-Pick C mutation.
- Sitosterolemia.
- Cholesterol cytochemistry in cell biology and disease.
- Approaches for the design of novel anti-atherogenic compounds.

This book would be useful for those working in the fields of biochemistry, chemistry, and pharmacology, as well as for advanced students.

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Coumarins. Biology, applications and mode of action. R. O'Kennedy and R.D. Thornes. Published 1997 by John Wiley & Sons Ltd., Chichester (U.K.), 1997, 358 pages. ISBN: 0-471-96997-4£60.00.

Coumarin and most of its derivatives have been known for more than a century, but their vital role in plant and animal biology has not been fully exploited. Coumarins are a group of compounds which prevent disease, modulate growth and maturation and defence systems and have anti-oxidant properties. They have important roles as food constituents: as anti-oxidants, stabilisers, and immunomodulatory substances; as fluorescent markers for use in analysis, in lasers and in clinical use. This book predominantly focuses on the biological and

clinical actions of the parent compound, coumarin, as well as its main metabolite in humans: 7-hydroxycoumarin and, to a lesser extent, 4-hydroxycoumarin. It describes in detail every facet of these compounds including history, toxicology, chemistry, metabolism, analysis, clinical, veterinary and other applications, their roles as immunomodulatory agents and speculates on their mode of action.

The following chapters are included:

- History of the development and applications of coumarin and coumarin-related compounds.
- The chemistry and occurrence of coumarins.
- The metabolism of coumarin.
- The effects of coumarin and its metabolites on cell growth and development.
- Coumarin as an immunomodulator.
- The mode of entry of coumarin into cells and its effects on cell–cell communication and migration.
- Coumarin in the treatment of lymphoedema and other high-protein oedemas.
- Mode of action of coumarin in the treatment of thermal injuries.
- Renal cell carcinoma: the background, rationale and current development of coumarin (1,2-benzopyrone) as a potential therapeutic agent.
- The potential role of coumarins in the therapy of prostate cancer.
- Clinical and biological observations associated with coumarins.
- Analysis of coumarins.
- Coumarins—multifaceted molecules with many analytical and other applications.
- Suggested modes of action of coumarins and some comments on their significance.

This book will be of interest to those working in biochemistry, chemistry, pharmacology, clinical sciences and toxicology.

The following three books are published in the *Essential Techniques* series, edited by D. Rickwood. This series of handy pocket-sized manuals is designed to provide researchers with immediate access to easy-to-follow step-by-step protocols required every day. Each book in this series is written by experienced laboratory researchers and gives up-to-date, tried and tested practical information for the life scientist. The most commonly used methods for each key technique are provided, with an explanation of their advantages and disadvantages, as well as advice on which procedure to use. Experimental notes and tips are given, plus information on safety and suppliers.

PII: S0960-0760(98)00015-6

Cell biology. Edited by D. Rickwood and J. R. Harris, *Essential Techniques Series*. D. Rickwood. 1996, John Wiley & Sons, Chichester, UK, 192 pages, ISBN: 0-471-96315-1 Price at May 1997: £16.99; US \$29.95.

As discoveries in the field of molecular biology begin to elucidate how cells function, studies of the whole cell, especially the core techniques of cell biology, have become increasingly important. The methods described in this book include cell culture, the isolation and fractionation of cell components, membrane analysis, light and electron microscopy. It provides the reader with a carefully selected set of protocols covering all the important areas of cell biology.

The following sections are included: Light microscopy; Basic electron microscopy; Cells; Isolation and functional analyses of organelles; Isolation and analysis of cell membranes; Isolation and fractionation of ribosomes and polysomes.

PII: S0960-0760(98)00016-8

Antibody production. P. J. Delves, *Essential Techniques Series*. D. Rickwood. 1997, John Wiley & Sons, Chichester, UK, 160 pages. ISBN: 0-471-97010-7 Price at July 1997: £17.99; US \$32.50.