

BOOK REVIEWS

Molecular Biology in Physiology. Edited by SHU CHIEN. Published November 1988 by Raven Press, New York. No. of pages: 181. ISBN: 0-88167-483-4. Price at March 1989: US\$70.00.

In recent years there has been enormous progress in different techniques to advance the knowledge of various problems in molecular biology. This book contains a synthesis with practical, up-to-date information concerning the methodology of molecular biology.

The first two chapters cover basic concepts and commonly used terminology in molecular biology, thus providing individuals who have little prior knowledge with the background information needed to follow the remainder of this book. This volume illustrates how molecular biology is applied to elucidate physiological functions in example systems. The topics discussed include the molecular biology of cell membrane transport proteins (the anion transport protein band 3 and proton ATPase), humoral agents regulating body fluids and cardiovascular functions (renin and atrial natriuretic factor), autonomic receptors and ionic channels (adrenergic receptors, acetylcholine receptors, and sodium channel), and long-term memory.

These areas should interest a broad spectrum of scientists working on various systems including membrane transport, body fluids and electrolytes, kidney, circulation, endocrine system, nerve-muscle, autonomic nervous system, and central nervous system. There is diversity as well as inter-relationship among the topics. This book will contribute to the opening of new horizons for physiological research by making use of the rapid advances in molecular biology as we enter the second hundred years of APS history.

Regulation of Cell Growth and Activation, (*Advances in Regulation of Cell Growth*, Vol. 1). Edited by JAMES J. MOND, JOHN C. CAMBIER and ARTHUR WEISS. Published December 1989 by Raven Press, New York. No. of pages: 304. ISBN: 0-88167-573-3 (Order Code: 2047). Price: US\$97.50.

The regulation of cell differentiation and growth control is an intensively studied theme in widely diverse biological systems. Cross-fertilization amongst different biological disciplines has facilitated extremely rapid progress in our understanding of fundamental mechanisms that influence cell growth and differentiation. As major advances have occurred in one system, new paradigms have been established in other areas of biology. However, at the same time, most steps forward in our understanding in this arena reflect the summation of many small steps in the form of original manuscripts in refereed journals which often fail to provide the "big picture". Thus, to one who is new to a particular subject, it is often difficult to understand the conceptual framework underlying a particular line of investigation. Little has been done to try to provide concise summaries of this large and rapidly expanding information base. This book is an effort to provide the novice as well as the expert in the areas of biochemistry, immunology, and cellular and molecular biology with summaries and progress reports from important investigators at the cutting edge of the field. Although there is an emphasis on lymphocyte biology, the chapters contained herein also draw heavily from the work of other investigators outside of immunology whose work may influence and direct future work in the study of lymphocyte growth and differentiation.

The following chapters are contained in this volume:

- Phosphoinositides, diacylglycerol, protein kinase C and their role in regulating cellular growth;
- Mechanisms of 1,2-diacylglycerol formation during receptor-mediated cellular activation;
- Signal transduction by the antigen receptor of B-lymphocytes: phosphoinositide breakdown and growth control;
- The regulation of polyphosphoinositide turnover following stimulation of the T cell antigen receptor;
- Molecular regulation of T lymphocyte activation;
- Transmembrane ion fluxes in T lymphocytes: prerequisites or consequences of ligand-induced activation;
- Regulation of T lymphocyte growth by antigen-presenting cell-derived costimulatory signals;
- Approaches to examine the role of multiple serine protein kinases in the coordinate regulation of cell growth;
- The structural basis for insulin receptor function;
- Biochemical properties of the mammalian *ras* proteins and their relatives;
- Stimulatory signals for secretion in mast cells and basophils.

This volume would be very useful for biologists, molecular biologists, physiologists, and for researchers working in cell differentiation and cancer cells.

Hormones and Cell Regulation, 13th European Symposium—Colloque INSERM Vol. 176. Edited by JACQUES NUNEZ, JACQUES E. DUMONT and RICHARD DENTON. Published 1989 by John Libbey, London and Montrouge, ISBN: 0-86196-183-8 and by INSERM, Paris, ISBN: 2-85598-356-8.

The *13th European Symposium on Hormones and Cell Regulation* focused on two complementary areas. The first was insulin action and a number of related topics, and the second was the regulation of gene expression with some emphasis on growth and differentiation. There were also a number of single topic general lectures in order to give a well-balanced programme, but with a distinct European flavour.

This volume contains the *Proceedings of the 13th Symposium* as follows:

Hormone Receptors:

- Neuropeptide receptors: structure and transduction mechanisms;
- Mechanism of activation of the EGF-receptor.

Insulin Action:

- Identification and characterization of a 15-kilodalton cellular target of the insulin receptor tyrosine kinase;
- Mechanisms of insulin resistance in muscle;
- Insulin, cyclic nucleotid metabolism and the G-protein system;
- Role of a phospho-oligosaccharide in insulin action;
- Effect of insulin on hepatic glucose production.

Growth and Differentiation:

- The actin binding protein, villin: an early differentiation marker of intestinal epithelial cells;
- Identification of human proteins that are likely components of the common pathway(s) leading to DNA replication and cell division;
- Role of the neuropeptide head activator for growth and development in hydra and mammals.

Regulation of Gene Expression:

- Clustered arrangement of DNA sequences bound by steroid receptor and other transcription factors;
- Thyroid Hormones and Expression of Cardiac Myosin heavy chain genes;
- Neural and pharmacological control of biological rhythms;
- Visualization of central and peripheral hormonal receptors.

Guanine Nucleotide Binding Proteins:

- The function of the mammalian *ras* proteins;
- Modulation of the substrate specificity of protein phosphatases. Phosphatases and kinases; a dialogue;
- Implication of protein-kinase C in the regulation of adrenocortical cell differentiated functions;
- Biochemical methods for mapping local functional activity in the nervous system.

Hormones and Cell Regulation, 14th European Symposium

—Colloque INSERM Vol. 198. Edited by JACQUES NUNEZ and JACQUES E. DUMONT. Published 1989 by John Libbey, London and Montrouge, ISBN: 0-86196-229-X and by INSERM, Paris, ISBN: 2-85598-400-9.

The 14th European Symposium on Hormones and Cell Regulation focused on two complementary areas. The first concerns gene regulation including the control of proto-oncogenes and antioncogenes. The studies presented start from the fundamental problems of the control of gene expression considering the modulation of protooncogenes and antioncogenes in cell proliferation, and end with the role of oncogenes in cell transformation. The second area is the relation of the cell with its environment through ionic channels and receptors for extracellular signals. In these fields also the genes of the proteins are cloned or about to be cloned and the sequences will give us crucial information on their function.

This volume contains the *Proceedings of the 14th Symposium* as follows:

Surface Receptors and Cyclases:

- Guanylate cyclase as a cell surface receptor;

—Transmembrane signal transduction in *Dictyostelium mutans*;

—Ca²⁺ requirement of MSH-receptor function: an unusual example among G-protein associated peptide hormone receptors;

—Irreversible V2 vasopressin receptor activation: effect on down-regulation of the c-AMP mediated cellular response;

—AMPA-sensitive excitatory aminoacid receptors in the chick brain;

—Homology cloning of cDNAs amplified by the polymerase chain reaction. Identification of four new members of the G-protein coupled receptor family.

Regulation of Gene Expression:

—Promoter and enhancer activation properties of the glucocorticoid receptor;

—Transcriptional regulation of the tyrosine aminotransferase gene; structure of a regulatory switch;

—Regulation of expression of the gene encoding aromatase cytochrome P-450;

—AP1 and PEA3 are nuclear targets for transcription activation by non-nuclear oncogenes.

Growth Factors:

—The epidermal growth factor receptor and its role in cell transformation;

—Microglial cell functions during brain development.

Controls Mechanisms in other Systems:

—Control of B cell activation in humans;

—Towards an animal model for retinoblastoma;

—Transcriptional activity of the octamer motif in embryonic stem cells and preimplantation embryos.

Ion Channels:

—The role of the ATP-sensitive K-channel in stimulus-response coupling in pancreatic β -cell;

—The plasma membrane Ca²⁺ pump: structural, functional and genetic aspects of isoform diversity;

—Growth control by proton transport: evolutionary considerations and novel approaches based on the cloned yeast proton pump;

—Membrane events involved in the action of endothelin and other vasoconstricting hormones.