

The application of the techniques of molecular biology and separation chemistry has allowed the identification of the sequences of protein and peptide hormones in both vertebrate and invertebrate species. Not only have these advances facilitated investigation of the physiological actions and the control of secretion of these hormones, they have also provided information on the evolution and structure-activity relationships of the hormones. Of particular note is the widespread existence, throughout the animal kingdom, of specific peptide/protein hormones and their receptors, some of which had previously been identified only in vertebrates or even only in mammals. The role of hormones may vary in different species, classes or phyla depending on evolutionary history and environmental niche. It should also be noted that endocrine phenomena may differ in laboratory and natural settings. The advent of field endocrinology offers considerable scope for future advances.

This book would be useful for people working in biology, molecular biology, biochemistry, biophysics, physiology, endocrinology, molecular endocrinology, and oncology, as well as for gynecologists, pediatricians, general clinicians and advanced students.

Molecular and Cellular Biology of Insulin-like Growth Factors and Their Receptors. Edited by D. LEROITH and M. K. RAIZADA. Published 1989 by Plenum Press, New York. No. of pages: 524. ISBN: 0-306-43254-4. Price: \$95.00.

An essential element in the development and functional integrity of all organisms is intercellular communication. This is achieved by the secretion of soluble messenger molecules which subsequently interact with receptor-effector pathways in the responsive cells. Hormones are traditionally defined as chemical messengers synthesized by endocrine glands. Unlike hormones produced by endocrine glands, growth factors are hormone-related substances produced by many tissues and play an important role in controlling growth and development. While the exact physiological roles of growth factors have yet to be elucidated, they play important roles in the regulation of cellular proliferation and/or differentiation during ontogenesis, growth and differentiation.

During recent years there has been a substantial increase in research related to peptide growth factors, their receptors, and modes of action. With the discovery and characterization of numerous growth factors, it became clear that these growth factors had multiple features in common with classic hormones as well as with oncogenes. Furthermore, there are distinct families of growth factors based either on structural or functional similarities.

One family, the insulin-related growth factors, includes insulin and insulin-like growth factors (IGF) I and II; its members exhibit similarities both structurally and functionally, at the level of the ligands as well as their receptors. Given the virtual explosion of research in this area, the publication of this book is indeed timely. The articles are written by many of the world's eminent experts in the field and were compiled following a very successful symposium on these topics held at the University of Florida in January 1989.

The purpose of this book is to afford the reader state-of-the-art developments in the molecular and cellular aspects of this interesting family of growth factors. It is divided into the following main sections:

- General aspects of insulin-like growth factor physiology;
- Molecular biology of insulin-like growth factors;
- Structural and functional relationships of the insulin-like growth factor receptors; and
- Cellular actions of insulin-like growth factors.

This book would be interesting and useful for endocrinologists, biologists, biochemists, biophysicists, and advanced students.

Immunity to Cancer. II, Progress in Clinical and Biological Research, Vol. 288. Edited by M. S. MITCHELL. Published 1989 by Liss, New York. No. of pages: 542. ISBN: 0-8451-5138-X. Price: \$90.00.

This volume contains the *Proceedings of the Second Conference on Immunity to Cancer*, held at Williamsburg, Virginia, on 9–11 November 1987. It includes up-to-date information on the most recent advances in different problems concerning immunologically based therapies in various cancers, from basic concepts of tumor antigenicity, and the immune response to tumor-derived antigens, to clinical trials with currently available biological materials.

The book is divided into the following major sections:

- Tumor antigens and monoclonal antibodies;
- Cells involved in the immune response to tumor cells;
- Regulatory mechanisms in immunity and their implications for therapy;
- Biomodulation of cancer. I;
- Biomodulation of cancer. II.

This book would be useful for oncologists, general clinicians, and immunologists, as well as for people working in the fields of molecular biology and biochemistry.

Growth Regulation of Cancer II. Edited by M. E. LIPPMAN and R. B. DICKSON. Published 1990 by Liss, New York. No. of pages: 202. ISBN: 0-471-56703-5. Price: \$52.50.

The Second 1989 UCLA Symposium on "*Growth Regulation of Cancer*" was held on 21–27 January 1989 in Keystone, Colorado. This meeting was devoted entirely to the growth regulation of cancer and was held jointly with the UCLA Symposium "*Genetic Mechanisms in Carcinogenesis and Tumor Progression*". Together, these were attended by over 700 participants and included formal presentations, workshops, and poster sessions.

The intense excitement generated by this meeting reflects the major research activity and progress being accomplished in this area. It has become clear that control of neoplastic cell proliferation and malignant behavior is a multi-faceted process involving genetic events leading to the activation and suppression of specific genes, the elaboration of growth factors and expression of their receptors, and the regulation of a variety of cell surface events that alter interactions of malignant cells with surrounding stroma and normal cellular components.

The articles included in this volume represent a cross-section of studies that appear to be making substantial contributions to this field. The role of newly discovered oncogenes such as the tyrosine kinase *lck* and *int-2* are among several of the most interesting in the pathogenesis of human malignancy. Other presentations are devoted to the expanding role for secreted growth factor activities in malignant progression. This is most clearly illustrated by studies on fibroblast growth factor. This is an enlarging family of growth factors representing products of specific oncogenes (*hst* as well as the protein product of *int-2*). Substantial evidence now exists that these growth factors can participate in autocrine and paracrine loops that contribute to tumor pathogenesis. One of the most clearly defined examples involves the role of progastrin-releasing peptide and its pivotal actions in human small cell lung carcinoma. Systematic analyses of breast and lung cancers (also described in this volume) point out the complicated control of growth regulation for both normal and malignant cells.

This book would be useful for oncologists, molecular biologists, physiologists, biochemists, and advanced students.

Advances in Cancer Control: Screening and Prevention Research. Progress in Clinical and Biological Research, Vol. 339. Edited by P. F. ENGSTROM, B. RIMER and L. E. MORTENSON. Published 1990 by Wiley Liss, New York. No. of pages: 495. ISBN: 0-471-56785-X. Price: \$129.50.

This volume contains the *Proceedings of the Seventh Annual "Advances in Cancer Control" Meeting* held in Bethesda, MD on 22 March 1989. In addition to scientific sessions on smoking cessation research, chemoprevention and diet research, and breast cancer screening research, there was a plenary session that addressed adherence to primary and secondary prevention studies. The papers in the sections "Cancer Research in the Community" and "Oncology Practices in the Community" were presented at the scientific session of the *Fifteenth Annual Meeting of the Association of Community Cancer Centers*, which met on 29 March–1 April 1989 in Washington, D.C.

The quality of the manuscripts in this volume is a testimony to the fact that the field of cancer prevention and control has matured. Most of the manuscripts describe results of cancer prevention and control interventions in the community setting. Some of the papers address issues of basic biochemistry and molecular oncology as they relate to possible cancer prevention and control interventions. Community hospitals have developed clinical research programs that include nurses, social workers, and oncologists, and their important contributions to the field are also included in this volume.

The main topics covered are as follows:

- Smoking cessation research;
- Chemoprevention and diet research;
- Breast cancer screening research;
- Bowel cancer screening research;
- Cancer research in the community;
- Oncology practices in the community.

This book would be of interest to people working in oncology, molecular biology, physiology, biochemistry, as well as for advanced students.

Methods in Neurotransmitter Receptor Analysis. Edited by H. I. YAMAMURA, S. J. ENNA and M. J. KUJAR. Published 1990 by Raven Press, New York. No. of pages: 279. ISBN: 0-88167-609-8. Price: \$66.00.

The development of new analytical tools and methodologies is the driving force for advances in science. An excellent illustration of this principle has been the emergence of neurobiology as a scientific discipline. Prior to the 1950s, the tools available for studying brain architecture, chemistry, and function could provide little more than generalized descriptions of this complex organ. This situation has changed dramatically during the past 30 years with improvements in analytical instrumentation, developments in radiochemistry and molecular biology, and refinements in *in vitro* methodologies. These advances made it possible to seek answers to questions that had not even been formulated in earlier times. With these tools, theories concerning the existence of neurotransmitters and neurotransmitter receptors were confirmed. Concepts relating to the manner in which neurotransmitters are synthesized, stored, released, conserved, and distributed, as well as those pertaining to the ionic and molecular events associated with synaptic transmission, have surfaced in a relatively short period of time because of the development of new analytical devices and methods.

The following chapters are included in this book:

- Methods for receptor binding;
- Computer-assisted analysis of binding data;
- Measurement of [³H]inositol phospholipid turnover;
- Analysis of neurotransmitter receptor-coupled cyclic nucleotide systems, cyclic adenosine 3',5'-monophosphate and adenylate cyclase;
- Receptor solubilization, characterization, and isolation;
- Methods for studying receptors with cultured cells of nervous tissue origin;
- Receptor autoradiography;
- Messenger RNA localization with the microscope: *in situ*;
- Receptor binding as a method for drug discovery.

This book would be useful for neuroendocrinologists, neurobiologists, and people working in the fields of endocrinology, molecular biology, and biophysics.

Statistical Evaluation of Mutagenicity Test Data, UKEMS Sub-Committee on Guidelines for Mutagenicity Testing. Report—Part III. Edited by D. J. KIRKLAND. Published 1989 by the University Press, Cambridge. No. of pages: 320. ISBN: 0-521-36605-4.

In March 1982 the United Kingdom Environmental Mutagen Society appointed a Sub-Committee to determine the minimal professional criteria that should be applied to mutagenicity testing in order to meet the requirements of UK authorities. The tests recommended in the "Guidelines for Testing of Chemicals for Mutagenicity" which was published by the Department of Health and Social Security (DHSS, 1981) formed the initial basis of the first volume which dealt with the most commonly used mutagenicity tests (UKEMS, 1983). A second volume (UKEMS, 1984), which also had to take account of other published guidelines, addressed a series of supplementary tests.

Very few of the chapters in these first two volumes adequately tackled the statistical aspects, either in terms of experimental design, or in terms of data analysis. As many guidelines were employing phrases like "Data should be analysed using appropriate statistical methods" the UKEMS Sub-Committee decided that Part III of their reports should address the statistical evaluation of mutagenicity test data. This report therefore attempts to do that and, where appropriate, to highlight the statistical implications of experimental design. The topics covered include bacterial and mammalian cell colony and fluctuation assays, *in vitro* and *in vivo* chromosomal aberration tests, sister chromatid exchange tests, *Drosophila* and dominant lethal assays.

The book is divided into the following main sections:

- Statistics and genetic toxicology—setting the scene;
- Analysis of data from microbial colony assays;
- Mammalian cell gene mutation assays based upon colony formation;
- Statistical evaluation of bacterial/mammalian fluctuation tests;
- Analysis of data from *in vitro* cytogenetic assays;
- Statistical methods for sister chromatid exchange experiments;
- Statistical analysis of *in vivo* cytogenetic assays;
- Statistical methods for the dominant lethal assay;
- Statistical methods for the design and analysis of mutation experiments with the fruit fly *Drosophila melanogaster*.

This book would be of interest to statisticians, biophysicians, biochemists, and people working in molecular biology, as well as for advanced students.