

## BOOK REVIEWS

**Genes and Genomes.** By MAXINE SINGER and PAUL BERG. Published 1990 by University Science Books, 20 Edgehill Road, Mill Valley, CA 94941, U.S.A. No. of pages: 930. ISBN: 0-935702-17-2. Price as of July 1990: \$52.00.

*Genes and Genomes* is a graduate level text and reference book that discusses the molecular structures and mechanisms underlying the utilization of genetic information by complex organisms. Written by two world-renowned researchers in molecular biology, this book captures the sense of discovery, understanding, and anticipation that has followed the recombinant DNA breakthrough. Over 700 two-colour, original illustrations complement the text and communicate genetic concepts clearly and precisely.

There are four main sections covering the following topics:

- Part I: Molecular basis of heredity: an overview
  - the genetic molecules;
  - replication, maintenance, and modification of the genome;
  - the logic and machinery of gene expression.
- Part II: The recombinant DNA breakthrough
  - the tools: enzymes;
  - the tools: host-vector systems;
  - the means: constructing, cloning, and selecting recombinant DNA;
  - the products: characterizing and manipulating recombinants.
- Part III: The molecular anatomy, expression, and regulation of eukaryotic genes
  - the structure and regulated expression of eukaryotic genes;
  - the molecular anatomy of eukaryotic genomes;
  - genomic rearrangements.
- Part IV: Understanding and manipulating biological systems

This book would be very useful for people working in the fields of biochemistry, biology, biophysics, molecular biology and physiology.

**The Biologic Role of Dehydroepiandrosterone (DHEA).** Edited by M. KALIMI and W. REGELSON. Published 1990 by Walter de Gruyter, Berlin, New York. No. of pages: 450. ISBN: 3-11-012243-X. Price: DM 340 (hardcover).

Dehydroepiandrosterone (DHEA) is a native steroid that declines with progressive age, and is found in the brain in concentrations equal to that in the adrenal cortex. There is a growing interest in DHEA's clinical place in atherosclerosis, hypertension, memory disorders, fat mobilization, and cancer prevention treatment. DHEA acts as a precursor steroid and/or a 'buffer hormone' that alters state dependency by interacting with other hormones. The text of this book explores DHEA's broad biologic action and its potential relevance to clinical disease. The following main chapters are included:

- Dehydroepiandrosterone: the precursor steroid.
- The biological significance of dehydroepiandrosterone.
- Dehydroepiandrosterone (DHEA) and its sulfate (DHEAS) as neural facilitators: effects on brain tissue in culture and on memory in young and old mice. A cyclic GMP hypothesis of action of DHEA and DHEAS in the nervous system and other tissues.
- Serum steroid levels in two old men with Alzheimer's disease before, during and after oral administration of dehydroepiandrosterone. Pregnenolone synthesis may become rate-limiting in aging.
- Cognitive effects of DHEA replacement therapy.
- Oral DHEA in multiple sclerosis. Results of a Phase One, open study.
- DHEA in multiple sclerosis: positive effects on the fatigue syndrome in a non-randomized study.
- Reduced plasma DHEA concentrations in HIV infection and Alzheimer's disease.
- Immune response facilitation and resistance to virus and bacterial infections with DHEA.
- DHEA and thymus integrity in the mouse.
- Effect of DHEA in lymphocytes and macrophages infected with human immunodeficiency viruses.
- DHEA and diabetic syndromes in mice.
- Regulation of DHEA metabolism by insulin, and metabolic effects of DHEA in man.
- The role of DHEA in obesity.
- DHEA and mitochondrial respiration.
- Effect of DHEA on rodent liver microsomal, mitochondrial, and peroxisomal proteins.
- The epidemiology of DHEAS with particular reference to cardiovascular disease: the Rancho Bernardo study.
- DHEA effects on cholesterol and lipoproteins.
- Digitalis-like materials and DHEA sulfate.
- Glucose-6-phosphate dehydrogenase and the relation of DHEA to carcinogenesis.
- Modulation of liver carcinogenesis by DHEA.
- DHEA alters the morphology and phospholipid content of cultured human endothelial cells.

- Studies on the biochemical action and mechanism of DHEA.
- DHEA: some thoughts as to its biologic and clinical action.

This book would be of interest to biochemists, clinicians, endocrinologists, pharmacologists, and people working on biochemical aspects of steroid hormones.

**Neuroendocrine Perspectives**, Vol. 8. Edited by E. E. MULLER and R. M. MACLEOD. Published 1990 by Springer-Verlag, New York. No. of pages: 196. ISBN: 0-387-97365-6. Price as of July 1990: \$79.00 (hardcover).

The flow of information in neuroendocrinology and related disciplines is vigorous, favored by the availability of sensitive and specific biochemical and histochemical techniques that advance our knowledge of CNS neurotransmitter and neuropeptide systems. This volume illuminates findings in this area which add complexity to the traditional view of the hypothalamo-pituitary control, and to established concepts of the modulation of brain function by target hormones. The first chapter demonstrates the importance of the posterior lobe as a regulator of prolactin secretion via two opposing influences, i.e. dopamine released by the tuberohypophyseal dopaminergic system into the short portal vessels and a prolactin-releasing factor which is produced locally, though the identity of its innervating neurons is still unclear.

The following main topics are covered in this volume:

- Prolactin releasing and inhibiting factors in the posterior pituitary.
- Effects of prolactin on target cells.
- Cellular and molecular aspects of the neuroendocrine-immune dialog in T-cell differentiation.
- The hippocampus: a site for modulatory interactions between steroid hormones, neurotransmitters and neuropeptides.
- Gastrointestinal peptide binding and function in the brain: emphasis on peptide YY.

This volume would be very useful for people working in the fields of neuroendocrinology, neurobiology, endocrinology, biochemistry, biophysics, and molecular biology.

**Structure-Function Relationship of Gonadotropins**. Sero Symposia Publications, Vol. 65. Edited by D. BELLET and J.-M. BIDART. Published 1990 by Raven Press, New York. No. of pages: 340. ISBN: 0-88167-570-9. Price as of April 1990: \$90.00.

In this volume, leading investigators highlight the enormous progress recently made in research on this subject. There is extensive coverage of major breakthroughs such as the cloning of the ovarian receptor for lutropin and choriogonadotropin, the elucidation of the structure of this receptor, and the first crystallographic studies of human chorionic gonadotropin. This book also describes significant advances in the epitope mapping of gonadotropins, the immunochemical and biochemical study of their structure, the examination of regulatory processes involved in subunit association, and the elucidation of the complex mechanisms responsible for regulation and expression of gonadotropin genes.

The following topics are covered in this volume: Chemical reduction-reoxidation of the glycoprotein hormone disulfide bonds; immunochemical approaches to the structure of gonadotropins; the antigenic structure of the human glycoprotein hormones alpha subunit; structural changes of sugar chains of human chorionic gonadotropin with malignant transformation of trophoblast; the isomers, subunits and fragments of hCG; Comparative approach of structure-function relationships of gonadotropins; regulatory steps in the assembly of the alpha-beta dimer of hCG in trophoblastic cells; gonadotropins as thyrotropins; bioassays of gonadotropins; background and clinical applications; the regulatory system of FSH: transduction of endocrine signals at the pituitary gland; TSH gene expression, transcription factors that activate cAMP-responsive expression of the gonadotropin alpha subunit gene; regulation of the genes encoding the human glycoprotein hormone alpha- and hCG-beta- subunits; differential regulation of chorionic gonadotropin subunit mRNA levels and secretion by gonadal steroids and growth factors in normal and malignant trophoblasts; cellular mechanisms of the gonadotropin-releasing hormone control of gene expression, synthesis and release of luteinizing hormone; structure of the ovarian receptor for lutropin and choriogonadotropin; Studies on the mechanism of follitropin-receptor interaction and signal transduction in testis; structural correlates for gonadotropin receptor-effector interactions; regulation of hCG receptors and hCG responsiveness by hormones and growth factors in cultured pig Leydig cells; free subunits of human chorionic gonadotropin as markers of trophoblastic differentiation and malignancy; the clinical utility of the measurement of urinary hCG and its fragments; human follicular fluid concentrations of inhibin-IGF-aromatase inhibitor activity during spontaneous and stimulated cycles.

This book would be useful for people working in the fields of neuroendocrinology, endocrinology, neurobiology, biophysics, and biochemistry.

**Molecular Mechanisms of Hormone Action**. Edited by U. GEHRING, E. HELMREICH and G. SCHULTZ. Published 1989 by Springer-Verlag, Berlin, Heidelberg, New York. No. of pages: 204. ISBN: 3-540-51607-7. Price: DM 112,00 (hardcover).

This book contains the 40th Colloquium of the 'Gesellschaft für Biologische Chemie' held in Mosbach/Baden on 6-8 April 1989, with contributions treating the molecular mechanisms of hormone action. This field of hormone action and signal transduction has made tremendous progress in the last years. The discussion covered results concerning the entire process