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BOOK REVIEWS

The Steroid/Thyroid Hormone Receptor Family and Gene Regulation. Birkhauser Congress Reports–Life Sciences, Vol. 4. Edited by J. CARLSTEDT-DUKE, H. ERIKSSON and J.-A. GUSTAFSSON. Published 1989 by Birkhauser Verlag, Basel. ISBN: 3-7643-2275-6. Price: SFR 84.00.

The Second International CBT (Center for Biotechnology) Symposium was held in Stockholm, Sweden, on 4–5 November 1988 under the title "The Steroid/Thyroid Hormone Receptor Family and Gene Regulation", and contained contributions from most leading laboratories within the field of steroid/thyroid hormone receptors, giving a very exciting perspective on the dynamic development of this important research field. Today, all known steroid hormone receptors have been cloned and sequenced and novel members of this supergene family are constantly being discovered, some of which remain to be characterized regarding the nature of their ligand. Access to probes for steroid receptors has enabled studies on mechanisms of regulation of receptor gene expression. Deletion and mutational analysis of steroid receptor cDNAs followed by expression in cells together with suitable reporter genes has yielded a detailed knowledge about the functional significance of the various domains the receptors are composed of. In certain cases, steroid resistance in patients has been shown to be due to point mutations in the corresponding steroid receptor genes resulting in non-functional receptors.

The availability of receptor cDNAs also makes it possible to express receptors at high levels in procaryotic and eucaryotic cells. It is, for instance, possible to express the DNA-binding domain of the glucocorticoid receptor in *E. coli* as a fusion protein with protein A which interacts specifically with DNA. Such studies are necessary for production of sufficient quantities of receptors to allow crystallization and X-ray crystallography for detailed structural information.

The following main topics are included:

- Receptor Structure. The contributions of the steroid receptor superfamily to development; physiology and medicine; cooperative interactions of steroid receptors at their target enhancers; the association of the glucocorticoid receptor with M_r 90,000 heat shock protein and tubulin; functional domains of steroid hormone receptors; thyroid hormone receptor interactions with DNA; structure and intranuclear dynamics of androgen receptors; structural analysis of the glucocorticoid receptor protein; speculations on the role of the 90 kDa heat shock protein in glucocorticoid receptor transport and function; growth inhibition of CEM cells by glucocorticoids: c-myc down regulation, and the topology of the glucocorticoid receptor; the vitamin D3 receptor and its chromosomal gene; the thyroid hormone receptor/c-erbA protein and its viral homologue; characterization of the human androgen receptor; characterization of new members of the steroid receptor super-family.
- Gene Regulation by Receptors. Reciprocal regulation of PEPCK gene and gene 33 transcription by insulin; repression of gene expression by glucocorticoid receptor through interference with cAMP responsive enhancers; steroid transactivation at a promoter organized in a specifically-positioned array of nucleosomes; glucocorticoid regulated sorting of cell surface glycoproteins—evidence for a glucocorticoid regulated trafficking gene; interaction of a steroid hormone receptor with DNA—molecular model and kinetic analysis.
- Receptor Localization and Distribution. Neural gonadal steroid receptors and actions—chemical anatomy of the ventromedial hypothalamus in relation to sexual differentiation and sexual behavior; structure, function and cellular distribution of mammalian progesterone receptors; cellular localization of estrogen and progestin receptors in the macaque reproductive system; do receptor-associated nuclear proteins explain earliest steps of steroid hormone function?
- Ligand Structure. Steroid molecular structure, receptor binding and hormone action; analysis of the steroid binding domain of receptors and ligand structure, and binding affinity.

This book would be very useful for people working in molecular biology, endocrinology, biology of reproduction, physiology and for advanced students.

Neuropeptide Y. Karolinska Institute Nobel Conference Series. Edited by V. MUTT, K. FUXE, T. HOKFELT and J. M. LUNDBERG. Published 1989 by Raven Press, New York. No. of pages: 377. ISBN: 0-88167-556-3. Retail price: US$156.50

Neuropeptide tyrosine (NPY) is the most recently discovered member of a group of peptides that also includes the "pancreatic polypeptide" (PP) and peptide tyrosine-tyrosine (PYY), all hexatriacontrapeptides with the *C*-terminal tyrosine amide. PP and PYY occur in cells of endocrine type; NPY has been found only in neurons.

This volume surveys what is known today about NPY, starting with its discovery in 1981. It was, like several other peptides, identified by way of its *C*-terminal amide structure. Its isolation from more than one species is described, revealing that it is a peptide with a highly conserved amino acid sequence. The determination of the nucleotide sequence of its gene is described, as are some aspects of the regulation of the expression of the gene. The anatomical pattern of the distribution of NPY and of its mRNA in the central and peripheral nervous systems, as well as developmental aspects, are described, and instances of the coexistence of NPY with other peptides and with classic neurotransmitters, particularly catecholamines, are cited.

The main topics included in this volume are as follows:

- NPY: the background;
- Neuropeptide Y: isolation, structure, and function;
- Regulation of neuropeptide Y gene expression;
- Molecular structure of neuropeptide Y and regulation of expression of its gene;
- Expression of neuropeptide tyrosine (NPY) messenger RNA and peptide in non-neuronal cells;
- Anatomical distribution of NPY and NPY messenger RNA in rat brain;
- The coexistence of neuropeptide Y with other peptides and amines in the central nervous system;
- Enduring and ephemeral expression of neuropeptide Y in the central nervous system of the developing rat, with special reference to its ontogeny in catecholamine-containing brainstem neurones;

- Neuropeptide tyrosine (NPY) in human cardiovascular innervation;
- NPY in peripheral non-adrenergic neurons;
- NPY receptors and their interactions with other transmitter systems;
- Studies on the neurochemical mechanisms underlying the neuroendocrine actions of neuropeptide Y;
- Synthetic fragments and analogs of NPY are ligands at NPY receptors in the rat cerebral cortex;
- Y1 and Y2 receptors for NPY—the evolution of PP-fold peptides and their receptors;
- The inhibitory actions of NPY and galanin on [^{3}H]norepinephrine release in the central nervous system: relation to a proposed hierarchy of neuronal coexistence;
- Neuropeptide Y in the modulation of autonomic nervous function;
- Roles of noradrenaline, adenosine 5′-triphosphate, and neuropeptide Y as possible sympathetic cotransmitters in some model tissues—new evidence and open questions;
- Tissue differences in the effects of neuropeptide Y, adenosine, and noradrenaline at the second messenger level;
- Neuropeptide tyrosine (NPY) and sympathetic cardiovascular control;
- On the role of NPY in central cardiovascular regulation;
- The role of neuropeptide Y (NPY) in control of anterior pituitary hormone release in the rat;
- Hypothalamic NPY: a local circuit in the control of reproduction and behavior;
- Neuropeptide Y in the hypothalamus;
- Neuropeptide Y modulates neurogenic mechanisms in the smooth musculature of the reproductive tract;
- Hypothalamic neuropeptide Y and galanin: functional studies of coexistence with neuroamines;
- NPY catecholamine interactions in the central nervous system;
- Neuropeptide Y and the circadian system;
- Effects of NPY on memory processing and ingestive behaviors;
- Alterations in neuropeptide Y in neurological disorders;
- Neuropeptide Y: biological and clinical studies;
- Neuropeptide Y—possible involvement in depression and anxiety.

This book is very useful for people working in molecular biology, endocrinology, biology of reproduction, physiology and for advanced students.

Andrology and Human Reproduction. Serono Symposia, Vol. 47. Edited by A. NEGRO-VILAR, A. ISIDORI, J. PAULSON, R. ABDELMASSIH and M. P. P. DE CASTRO. Published 1988 by Raven Press, New York. No. of pages: 357. ISBN: 0-88167-374-9. Price February 1989: US$105.00.

The fields of andrology and human reproduction have experienced great and exciting advances in recent years. To cover in detail the most relevant topics dealing with reproductive functions in health and disease, the Pan American Congress of Andrology Organization and Ares-Serono Symposia jointly sponsored an *International Symposium on Andrology and Human Reproduction*, which took place in Sao Paulo, Brazil on 4–6 May 1987 and congregated many of the most renowned experts in the areas of andrology, endocrinology, fertility and sterility.

The book is divided into 7 sections covering the following topics:

- New techniques for assessment of conventional semen parameters; new parameters of semen analysis; bioassays for male infertility; evaluation of the female gamete; comments to some basic problems in andrology;
- Artificial methods to induce pregnancies; results of super-ovulation gametes and embryos transfer; the role of IVF in male infertility;
- Intrauterine insemination by husband; new concepts in the physiology of LHRH and on its role in pulsatile gonadotropin secretion; pulsatile gonadotropin and sex steroid secretion in men; gonadotrophic control of human spermatogenesis; progesterone receptor blockade by RU-486: a model for progesterone receptor deficiency in infertile women; serum LH and alpha-subunit secretory pattern after surgical and chemical castration; some clinical applications of LHRH and its analogs for diagnosis and therapy;
- Local regulatory factors in the testis; local factors in reproduction, on the role of epididymal factors in sperm fertility; antibodies to sperm and infertility; the infertile couple: definitions and standards;
- The role of adrenergic and neuropeptidergic systems in the regulation of male sexual behavior; erectile dysfunction: what is the actual responsibility of the masked organic factors?; prosthetic treatment of erectile dysfunction;
- Hormonal treatment of male infertility; non hormonal medical treatment of male infertility; an endocrine approach for the treatment of the infertile woman; utilization of CO_2 laser for operative laparoscopy; human pre-embryos freezing technique;
- WHO's approach to the management of the infertile couple; unilateral testicular obstruction in subfertile males; treatment of organic male sexual dysfunction.

This book would be useful for andrologists, endocrinologists, clinicians, oncologists and those working in biology of human reproduction.

Multimodal Treatment of Ovarian Cancer. Monograph series of the European Organization for Research and Treatment of Cancer (EORTC), Vol. 20. Edited by P. F. CONTE, N. RAGNI, R. ROSSO and J. B. VERMORKEN. Published 1988 by Raven Press, New York. No. of pages: 351. ISBN: 0-88167-476-1. Price April 1989: US$ 111.50.

Ovarian carcinoma is one of the most important causes of cancer death among gynaecological malignancies and in the last years considerable progress has been made in the improvement of the survival rate of patients with this disease. One of the reasons for this is early diagnosis, as well as more efficient treatment with new drugs.

This book contains up-to-date information and covers the following topics divided into 7 main sections:

- Tumor biology: critical analysis of prognostic factors of ovarian cancer; steroid hormone receptors in human ovarian tumors; tumor cell kinetics: a new prognostic factor in ovarian cancer; colony forming cell assays: clinical correlations;
- Diagnosis and staging: ovarian tumor antigens: targets for diagnosis, monitoring and therapy; radioimmunoscintigraphy in ovarian cancer; nuclear magnetic resonance in ovarian cancer; diagnosis and screening of ovarian malignant tumors: a possible role for the echotomography;
- Early ovarian cancer: cooperative randomized clinical trial for stage I ovarian carcinoma (OC); the European experience; management; multimodality treatment: the U.S. experience; ovarian tumours of borderline malignancy; limited surgery in non-epithelial and in epithelial OC;