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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;