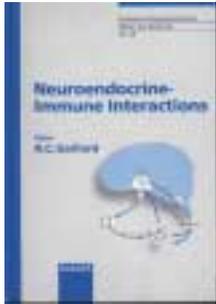


Unifying the immune and neuroendocrine systems

Neuroendocrine-Immune Interactions
edited by Rolf C. Gaillard. Karger, 2002.
CHF 196.00/DEM 255.00/EUR 130.38/
US\$170.50 (x + 134 pages) ISBN 3 8055 7282 4



Rolf C. Gaillard, the editor of *Neuroendocrine-Immune Interactions*, brings together some of the most productive and influential investigators in this field. The chapters cover a

nice blend of basic and cutting-edge topics. Most of the authors attempt to redress the continued perception of immunologists and neuroscientists that interactions of the immune and neuroendocrine systems have little meaningful impact on the function of either system. Several of the chapters include examples from animal studies in which the neuroendocrine system clearly affects immunological end points. An additional chapter featuring recent work on the role of neuroendocrine feedback in preventing cytokine-induced shock syndrome secondary to infection would have been welcome.

A common criticism of the field is not addressed by most of the authors. David S. Jessop discusses possible reasons for the inconsistent results reported in the literature by different groups, but most of the other contributors make only passing references to this problem. The book would have been a good venue to thoroughly discuss explanations for this phenomenon, and perhaps to provide suggestions for decreasing spurious results. Issues that could have been effectively addressed by this group of authors include the use of non-physiological concentrations of neuroendocrine mediators, over-reliance on cell culture approaches and on immunological end-points of uncertain meaning (e.g. mitogen-induced lymphocyte proliferation), and the lack of necessary controls or faulty interpretation of data in many receptor-binding studies.

The book considers the interface between the nervous, endocrine and immune systems. In keeping with the editor's agenda, the authors of the various chapters have interpreted this interface as something physical, as when signaling agents from one system react with the receptors in another system and modulate its behavior. However, an interface can also be conceptualized in functional terms. Nikolai Petrovsky discussed this idea in a recent article in which he described the relationship between the body's systems as an integral entity. Unfortunately, he did not discuss this idea in his chapter, possibly because, as the editor suggests, a strictly reductionist approach is the fashion of the day. Whatever the merits of reductionism, and there are many, it masks the fact that only a global approach affords the possibility of predicting behavior. For example, infection, stress and disease are emergent manifestations that cannot be located solely in terms of the component systems of the body. In such cases, we might aspire to know something of the underlying dynamic law so that predictions might be possible, at least on a statistical basis, even though the linear concept of mechanism might be obscured. A chapter devoted to this approach would have added balance to the book.

The sequence of topics is a bit puzzling. Chapters on nitric oxide and heme oxygenase appear at the end of the book, and the excellent chapter by Catherine Rivier relating NO and CO appears early in the book. Otherwise, it is well organized and provides both a good starting point for immunologists or neuroscientists and a concise update of several topics of interest to investigators in this field. Hopefully, the book will lessen the compartmentalization in the relevant disciplines identified by Besedovsky and del Rey in their chapter, and remind investigators that the body's systems are constantly communicating and affecting each other's functions.

Stephen B. Pruet*

Andrew A. Marino

Dept of Cellular Biology and Anatomy,
Louisiana State University Health
Sciences Center, Shreveport,
LA 71130, USA.

*e-mail: spruet@lsuhsc.edu

Chromogranins: embracing the past and unraveling the future

Chromogranins. Functional and Clinical Aspects

edited by Karen B. Helle and Dominique Aunis. Kluwer/Plenum, 2000. US\$110.00
(xxii + 450 pages) ISBN 0 306 46446 2



Over the past few decades, a substantial amount of information describing the structural and functional roles of chromogranins in cellular processes has been obtained.

Chromogranins begins with an introductory section, giving a general overview of the historical and functional significance of chromogranins. The introduction is clearly written and provides the reader with enough relevant information to appreciate the complexity of the field that has developed since chromogranin A, a molecule coreleased with catecholamines from adrenal glands, was identified as the first member of the chromogranin family.

The first author-specific contributions to this book are related to the intragranular function of chromogranins. Members of the chromogranin family are quantitatively the major constituents of secretory granules in endocrine and neuroendocrine cells. Chromogranins have been proposed to play a significant role in both secretory granule biogenesis and the regulated secretion of hormones. In light of these findings, the authors present information that describes the sorting mechanisms of chromogranins to secretory granules, in addition to their functional roles in the exocytotic process. Interestingly, the authors go on to discuss the significance of the interaction between chromogranins and catecholamines and/or other granule components in exocytosis. Although most of the chapters describe a clear relationship between chromogranins and specific intracellular functions, to my knowledge no direct evidence has demonstrated that there is an interaction between dopamine

β -hydroxylase and chromogranin A. Nonetheless, the authors do a good job of introducing readers to the role of chromogranins in granule formation and exocytosis.

The third section of the book is devoted to transcription, expression and secretion of chromogranin A and secretogranin II. Given that cell-specific determinants appear to be involved in the expression of chromogranins, the characterization of their promoters is crucial to understanding the molecular mechanisms underlying the restricted expression of the chromogranins. Significant information is presented in this section depicting the presence of consensus sequences proximal to the promoter region of secretogranin II and chromogranin A. The description of the regulation of transcription and secretion of chromogranin A by pituitary adenylate cyclase-activating polypeptide is quite good and the proposed model for the signal transduction pathways underlying this regulation is scientifically stimulating. From an evolutionary standpoint, it has become clear that peptides predate catecholamines as neurotransmitters. Therefore, the characterization of chromogranins in nonmammalian vertebrates, such as the frog *Rana ridibunda*, is welcome information that allows us to appreciate the conservation of these proteins and to understand their roles as precursors of active peptides.

Succeeding chapters describe the tissue-specific processing, transport and distribution of chromogranins. This section presents a good overview of the proteolytic processing undergone by the chromogranin precursor protein to generate several active peptides. In addition, the tissue distribution of these peptides is also presented. It is known for other peptide precursor proteins (e.g. proopiomelanocortin) that the subcellular location of their processing enzymes is crucial for the differential expression and processing of peptides. Therefore, the identification and tissue distribution of peptides derived from chromogranin precursors is central to elucidating the relevance of their physiological functions.

It has been well established that the physiological functions of chromogranins are directly related to the main bioactive peptides generated from the chromogranin precursor by proteolytic processing. To this end, several chapters discuss the functional aspects of the chromogranin peptides and their possible implications for human diseases. I consider this section a good comprehensive review of the functional properties of several of the peptides derived from chromogranins. The importance of these studies is that chromogranins are implicated as regulatory peptides in several homeostatic mechanisms. This implication allows the realization that this information is relevant for understanding the roles of chromogranins in pathophysiological conditions.

One interesting concept is that because chromogranins are localized and secreted from neuroendocrine cells, they can be used as markers for pathophysiological conditions. The clinical use of chromogranins is an interesting and important topic that is covered sufficiently well by preliminary data that show the potential of determining levels of chromogranins in tissues and serum. As indicated by the abundance of recent publications, it is quite obvious that significant efforts are being made to evaluate changes in the levels of circulating chromogranins, which could have important clinical applications as diagnostic tools in human diseases.

In my opinion, one minor drawback in this book is that many contributors can cause problems for interpretation, in part because of the varied writing styles of each author. There are several articles that are effectively presented, whereas a few others are more difficult to follow. Nonetheless, this first book devoted entirely to chromogranins is a valuable collection of information. Therefore, I recommend *Chromogranins* for students and basic scientists interested not only in chromogranins, but also in peptide processing and secretory granule proteins.

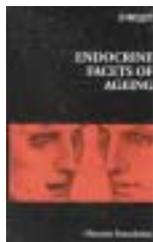
Ana Maria Oyarce

Dept of Pharmacology and Therapeutics,
Medical College of Ohio, Toledo,
OH 43614-5804, USA.
e-mail: aoyarce@mco.edu

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Endocrine Facets of Ageing

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ISBN 0 471 48636 1



Envisioning Science. The Design and Craft of the Science Image

by Felice Frankel.
MIT Press, 2002.
US\$55.00 (382 pages)
ISBN 0 262 06225 9

Erratum

In the Research News article by Ellis Levin [*Trends Endocrinol. Metabol.* 13 (5), 184–185], the first passage on p. 185 should have read: 'There are both endothelium-dependent and -independent components to vascular tone. The endothelium-dependent component predominantly reflects endothelial nitric oxide synthase (eNOS) activation, whereas the endothelium-independent component includes inducible nitric oxide synthase (iNOS) action, arising from smooth muscle and other cells.' *Trends in Endocrinology & Metabolism* apologizes for any confusion caused.

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This seamless intertwining of past, present, and future makes Japan a fascinating destination to explore. One of the best places to experience the paradoxical essence of Japanese culture is in the nation's largest city, Tokyo. Ultramodern and seemingly always in motion, Tokyo is one of the world's most dynamic megacities. For visionary travelers open to new possibilities, embracing the art of Japanese living with the expert, local guidance of InterContinental® Hotels & Resorts offers the inspiration and insights to reimagine the future. Learn how you can continue fueling your fascination for discovering new places by becoming an InterContinental® Ambassador.