

receptors and mechanism of action of steroid hormones

Part II

edited by JORGE R. PASQUALINI

Receptors and Mechanism of Action of Steroid Hormones

(IN TWO PARTS)

PART II

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PREFACE

After the discovery of steroid hormones at the end of the twenties, the research in this field was focused on various problems: primarily with the origins of the hormones themselves, their metabolic pathways, evaluation, production rates and concentration in various biological fluids. Other interesting aspects studied were the control of hormone production, their evaluations and their variations in physiological and in pathological conditions as well as during development of the organism.

The problem of "how" steroid hormones carried out their biological actions was an unknown process for many years after their discovery. In this concern, an important advance was made at the end of the fifties by E. V. Jensen and H. T. Jacobsen, and by R. F. Glascock and W. G. Hoekstra, who demonstrated the selective retention of estrogens in the target tissues. These findings were followed by the discovery of specific macromolecules, receptors, which specifically bind the hormone with high affinity. Subsequently, similar observations were made for the other steroid hormones: androgens, corticosteroids, progesterone, and mineralocorticoids.

In recent years the extraordinary development in new techniques in molecular biology and their application to steroid hormones has provided significant advances in the knowledge of the different steps between the moment that the hormone reaches the target tissues and the moment that the biological effects are obtained.

This latent period before the physiological response involves not only the specific binding of the hormone to the receptor, but also the interaction of the hormone-receptor complex with the genome, the regulation of the synthesis of new m and r RNA, and the synthesis of new proteins. More recently, the finding that a great percentage of mammary cancers contain steroid hormone receptors opens new and encouraging perspectives not only in physiological problems, but also in hormone therapy.

In this book, the recent information on developments in steroid hormones at the molecular and cellular levels is combined in several chapters. We hope that it will be useful for those who are interested in this and similar fields of knowledge.

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CONTENTS

Preface	iii
Contributors to Part II	v
Contents of Part I	ix
Chapter 8: GLUCOCORTICOID RECEPTORS AND MECHANISMS OF ACTION	311
Allan Munck and Kui Leung	
I. Introduction	312
II. Target Tissues of the Glucocorticoids	314
III. Relation of Established Target Tissues to Physiologic Effects	321
IV. Primary Mechanisms of Action of Glucocorticoids	325
V. Glucocorticoid Receptors	337
Acknowledgments	356
References	357
Chapter 9: MINERALOCORTICOID RECEPTORS IN TARGET TISSUES	399
Jorge R. Pasqualini and Charlotte Sumida	
I. Introduction	400
II. Uptake of Aldosterone by Different Tissues and Its Intracellular Distribution	413
III. Localization of Aldosterone and Other Mineralocorticoids by Autoradiography	425
IV. Total Binding of Mineralocorticoids in Various Tissues	430
V. Specific Receptors of Aldosterone and Other Mineralocorticoids in Various Tissues	446
VI. Mechanism of the Formation of Mineralocorticoid-Macromolecule Complexes in the Cytosol and Nuclei and Their Interrelationship in Target Tissues	483

VII. Conclusions	492
Acknowledgments	497
Notes	497
References	497
Chapter 10: THE MECHANISM OF ACTION OF ALDOSTERONE	513
Jean Crabbé	
I. Introduction	514
II. Amphibian Epithelia	517
III. Effect of Aldosterone on Sodium Transport by Amphibian Epithelia	523
IV. The Point of View	555
Acknowledgments	556
Notes	557
References	557
Chapter 11: STEROID HORMONE RECEPTORS IN BREAST CANCER	569
Elwood V. Jensen and Eugene R. DeSombre	
I. Introduction	569
II. Interaction of Estrogenic Hormones with Target Tissues	570
III. Hormone Dependency of Human Breast Cancer	581
IV. Summary	593
References	594
Chapter 12: STEROID HORMONE RECEPTORS IN BRAIN, HYPOTHALAMUS, AND HYPOPHYSIS	603
Junzo Kato	
I. Introduction	604
II. Estrogen Receptors	604
III. Androgen Receptors	638
IV. Progesterone Receptors	648
V. Corticosteroid Receptors	651
VI. Summary	656
References	658
AUTHOR INDEX	673
SUBJECT INDEX	725

CONTENTS OF PART I

Chapter 1: GENERAL ASPECTS OF STEROID HORMONE-RECEPTOR INTERACTIONS

Allan Munck

Chapter 2: AUTORADIOGRAPHIC LOCALIZATION OF ESTROGEN, ANDROGEN, PROGESTIN, AND GLUCOCORTICOSTEROID IN "TARGET TISSUES" AND "NONTARGET TISSUES"

Walter E. Stumpf and Madhabananda Sar

Chapter 3: PURIFICATION OF ESTROGEN RECEPTOR BY AFFINITY CHROMATOGRAPHY

Vincenzo Sica, Pedro Cuatrecasas, Ernesto Nola, Indu Parikh, and Giovanni Alfredo Puca

Chapter 4: ESTROGEN IN NORMAL HUMAN ENDOMETRIUM

Erlio Gorpide and Linda Tseng

Chapter 5: RECEPTORS AND THE MECHANISM OF ACTION OF ANDROGENS

Shutsung Liao

Chapter 6: STEROID HORMONES AND THE CONTROL OF TUMOR GROWTH: STUDIES ON ANDROGEN-RESPONSIVE TUMOR CELLS IN CULTURE

Roger J. B. King, Graham J. Cambray, Rosemary Jagus-Smith, Jeffrey H. Robinson, and James A. Smith

Chapter 7: THE MECHANISM OF ACTION OF PROGESTERONE

Thomas C. Spelsberg and David O. Toft

