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## Preface

Endocrinology is classically defined as the study of the biosynthesis, storage, chemistry, and physiological function of hormones. The origins of this discipline can be traced as far back as 200 BC when the Chinese isolated sex and pituitary hormones from human urine and used them for medicinal purposes (Temple, Robert, *The Genius of China*). There were many early descriptions of substances (i.e., hormones) emanating from animal and human organs (Rolleston, 1937 Br Med J 1(3984):1033–1036) however, the term “endocrine” and “endocrinology” did not appear in common usage until the mid- to late 1800 s. In 1902, Bayliss and Starling first defined a hormone as a chemical that must be produced by an organ, released into the blood, and transported by the blood to a distant organ to exert its specific function. Since this early description of a hormone, our understanding of hormone action and the field of endocrinology has blossomed due to technological breakthroughs. Early work identified hormones such as insulin which led to the Noble Prize in Medicine for Drs. Banting, Best, and Macleod in 1923. In 1947, the mechanisms of hormonal feedback in regulating carbohydrate metabolism by extracts of the anterior pituitary led to the Nobel Prize for Dr. Bernardo Houssay. This work laid the foundation for the study of hormonal feedback control which is central to all aspects of modern endocrinology. In 1950, the Nobel Prize was shared by Drs. Hench, Kendall, and Reichstein for their work on the discovery of hormones from the adrenal cortex such as cortisone, their structure, and biological effects. Our understanding of hormone actions was further expanded by the work of Dr. Roger Guillemin and Dr. Andrew Schally for their elucidation of releasing factors such as thyroid releasing factor and gonadotropin releasing factor. These releasing factors were demonstrated to have neuroendocrine actions for which the scientists received the Nobel Prize in 1977. This same year they shared the Prize in Medicine with Dr. Rosalyn Yalow who, along with Dr. Soloman Berson, developed the radio-immunoassay to measure insulin.

Although all of these “pioneers” in our field have laid a path to advance our understanding of hormone structure, hormone action, and their biological effects, there has been a continuous advancement of our understanding on a day to day, week by week, year to year basis using new and novel techniques. In this volume, *Molecular Endocrinology: Methods and Protocols*, we have invited leaders in the field to share a diverse array of cutting-edge techniques that are becoming routinely employed in our quest to further understand hormone action. We have attempted to include a step-by-step protocol that allows investigators at all stages of their scientific career to successfully perform these techniques. We are indebted to the numerous investigators who have provided their time and expertise to make the techniques in their labs come to life in this volume. For all of us involved in this guide, it has been a learning experience, and hopefully this will translate into a simple, easy to follow step-by-step guide for the reader. We are grateful for the advice and guidance of Dr. John Walker throughout the process of compiling this book. We are also appreciative of

Humana Press for the opportunity to publish this volume. Finally, we are extremely indebted to Kathy Rosewell for all of her work in shepherding the editors throughout this entire process, which is analogous to herding cats! We hope you enjoy this volume of *Methods in Molecular Biology*.

Molecular Endocrinology

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Park-Sarge, O.-K.; Curry, Jr., Th.E. (Eds.)

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