

# Methods in Enzymology

Volume XXXVI

HORMONE ACTION

Part A

Steroid Hormones

*Methods in Enzymology*

*Volume XXXVI*

*Hormone Action*

*Part A*

*Steroid Hormones*

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## Preface

The creation of a series of volumes dealing with methodological aspects of hormone action has been a substantial undertaking. The large investment of time required for this project on the part of both the editors and the contributors appears to be justified because of the rapidly increasing number of investigators in the field of hormone action. A rough estimation gleaned from journal articles and programs of national meetings leads us to the striking conclusion that an approximate sixfold expansion of this field has occurred over the past eight years. For this reason we have attempted to select a representative sample of the basic methods employed in this field and present them in this series of volumes for "Methods in Enzymology." The volumes have been arbitrarily subdivided into five major categories, the first three of which deal with techniques employed primarily in studies on steroid hormones, peptide hormones, and cyclic nucleotides. An additional volume deals with isolated cell, tissue, and organ systems used for studies of all hormones, and a final volume contains contributions in the areas of nuclear structure and function in addition to various other techniques covering a wide variety of topics.

The progress made by the investigators working on steroid hormone action in the early 1960's appears to have formed much of the basis for development of the "hormone action" field. Preparation of radioactive tracers which could be used as probes for intracellular hormone action and the realization that steroid hormones control nucleic acid and protein synthesis in target cells provided the foundation for the growth of interest in this area.

This volume contains a compilation of techniques, and as such is intended to provide a methodological reference for studies of steroid hormone action. Thyroid hormones are also included in this volume because of their apparent similarities in regard to molecular mechanism of action. Considerations are provided concerning the manner in which hormones circulate in the blood stream and are eventually sequestered in target cells. This leads to description of their interactions with cytoplasmic and nuclear receptors as well as presentation of techniques for purification of the steroid hormone receptor molecules. Methods dealing with the biochemical and biological processes stimulated by steroid hormones are included in addition to methods for assessing hormone metabolism. Although a good deal of work and interest in this field has been at the level of gene transcription and nucleic acid synthesis, such methods have been and will continue to be dealt with in other volumes of this series. Although some overlap exists between contributions to this volume, it is our opinion



that investigators should have a choice of laboratory approaches in cases where some controversy exists.

Omissions have inevitably occurred—some because potential authors were overcommitted, some because of editorial oversight, some because of the timing of new developments relative to the publication deadline. Some apparent omissions have been covered in previous volumes of "Methods in Enzymology."

We thank Drs. S. P. Colowick and N. O. Kaplan who originated the idea for and encouraged the compilation of this volume. We thank the staff of Academic Press for their help and advice. We especially thank the contributing authors for their patience and full cooperation and for carrying out the research that made this volume possible.

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