

*Sidney P. Colowick and Nathan O. Kaplan*

# Methods in ENZYMOLOGY

Volume 109

Hormone Action

Part I

Peptide Hormones

*Edited by*

Lutz Birnbaumer

Bert W. O'Malley

*Methods in Enzymology*

*Volume 109*

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*Peptide Hormones*

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*Lutz Birnbaumer*

DEPARTMENT OF CELL BIOLOGY  
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## Preface

The field of hormone action is undoubtedly one of the fastest growing areas of biological science. A rough assessment of the rate of growth of this field, as determined from an evaluation of journal articles and programs of national meetings, leads us to the surprising conclusion that an approximate tenfold expansion has occurred over the last decade. Research in hormone action not only has grown into a dominant effort in endocrinology and reproductive biology, but has also captured a large share of the more general disciplines of biochemistry, cell biology, and molecular biology. This development has occurred because of the dynamic aspects of the field and the increasing interest inherent in the new discipline of regulatory biology. None of these advances could have occurred without a widespread concurrent development of new techniques or adaptation of relevant techniques from other disciplines for studies on hormones and the mechanisms involved in hormone action.

In this volume of *Methods in Enzymology* a series of techniques and methods of study as they relate to research on peptide hormones and their mechanisms of action have been compiled. It has been subdivided into sections on receptor assays, identification of receptor proteins on cell surfaces, methods for the identification of internalized hormones and hormone receptors, preparation of hormonally responsive cells and cell hybrids, purification of membrane receptors, assays for hormonal effects and related functions, the use of antibodies in the study of hormone action, and, finally, into a section on general methods which includes a variety of methods for the modification of protein hormones, purification, some of the newer growth factors, as well as other methods of interest.

As always, the techniques gathered are not all-inclusive, some of the research areas are presented in a fragmentary way, and, undoubtedly, important methods have escaped our attention. We hope, however, that the approaches and methods that we have collected in this volume will be, as they have already been, of very general applicability and an aid both to researchers and to the more rapid advancement of the field of hormones and hormone action.

LUTZ BIRNBAUMER  
BERT W. O'MALLEY

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- II. Preparation and Assay of Enzymes
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