

Methods in Enzymology

Volume XXIX

Nucleic Acids and Protein Synthesis

Part E

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Preface

The introduction of two additional volumes dealing with nucleic acids and protein synthesis (Volume XXIX, Part E and Volume XXX, Part F) attests to the remarkable progress that continues to be made in these fields of research.

In this volume detailed descriptions for the isolation, purification, and properties of DNA polymerases from a variety of prokaryotic and eukaryotic organisms are given. In addition, a description of those proteins that may participate in the replication process in an ancillary manner is presented. Techniques with which the activities of DNA polymerases may be assessed under conditions *in vivo* by virtue of the employment of cells with modified permeability properties are also included. The isolation and characterization of those DNA polymerases from animal cells and viruses capable of transcribing RNA are described in detail.

The formidable task of DNA sequencing is currently being approached through the use of a variety of techniques. Repeating DNA sequences analyzed by reassociation kinetics, visualization of reassociated ring formation, and denaturation mapping by electron microscopy are detailed in this volume. Primary sequencing methods of DNA are currently approached through the combined use of restriction enzymes, DNA and RNA polymerase-catalyzed transcripts, and ribonucleotide substitution into DNA. It is anticipated that the availability of these novel methods will facilitate the solution of this arduous task.

One section of this volume deals with the preparation, resolution, and characterization of tRNA's, of some derivatives of tRNA's, and of some enzymes that use tRNA as a substrate.

Volume XXX, Part F deals with the preparation and characterization of initiation, elongation, and termination factors, of ribosomes and ribosomal subunits, of messenger RNA's, and of *in vitro* systems capable of translating information in mRNA into proteins.

We thank the many colleagues who have so generously acknowledged the influence of these volumes and the reliability of the methods. The credit belongs to the numerous authors who have contributed so ably. The methods presented in these two new volumes reflect the most recent advances in the methodology with which problems in molecular biology are currently under investigation; we hope that they will be found equally useful. We also wish to acknowledge the valuable assistance and cooperation of the very capable staff of Academic Press.

LAWRENCE GROSSMAN
KIVIE MOLDAVE

METHODS IN ENZYMOLOGY

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- I. Preparation and Assay of Enzymes
- II. Preparation and Assay of Enzymes
- III. Preparation and Assay of Substrates
- IV. Special Techniques for the Enzymologist
- V. Preparation and Assay of Enzymes
- VI. Preparation and Assay of Enzymes (*Continued*)
 - Preparation and Assay of Substrates
 - Special Techniques
- VII. Cumulative Subject Index

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