

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 Volume XXIX details are provided for the isolation, purification, and properties of both DNA-directed and RNA-directed DNA polymerases derived from a variety of prokaryotic and eukaryotic organisms. The isolation of those ancillary proteins which can influence the rate and extent of some polymerization reactions is also described. In addition, the preparation of cells with ultrapermeability properties allowing for the direct assessment to DNA polymerase activities *in situ* is documented. A variety of currently available techniques for the sequence determinations of DNA and analyses of repeating DNA sequences are described in great detail. One section deals with the preparation, resolution, and characterization of tRNA's, of some derivatives of tRNA, and of some enzymes that use tRNA as a substrate.

This volume deals with the various prokaryotic and eukaryotic systems that can carry out protein synthesis and/or intermediary reactions involved in this process. A portion of the volume is devoted to some new and improved methods for examining the roles of initiation, elongation, and termination factors. A fairly extensive section describes the preparation, physical and biological characterization, and the protein compositional analysis of ribosomes and their corresponding subunits; assays for individual reactions catalyzed by these particles are also included. The isolation of several messenger RNA's and the preparation of a number of biological systems capable of *de novo* synthesis of complete, identifiable proteins *in vitro*, particularly from eukaryotic cells, are also described.

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 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. We also wish to acknowledge the valuable assistance and cooperation of the very capable staff of Academic Press.

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