The Enzymes

THIRD EDITION

Edited by Paul D. Boyer

XIV

Nucleic Acids
Part A

THE ENZYMES

Edited by PAUL D. BOYER

Department of Chemistry and
Molecular Biology Institute
University of California
Los Angeles, California

Volume XIV

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Preface

This volume marks a change in organization, but not in the basic objectives, of "The Enzymes." Until this volume, the Third Edition of "The Enzymes" has been organized as an updated companion to the First and Second Editions; namely, a multivolume treatise that covers the present knowledge of groups of enzymes that catalyze similar reactions. But as the Third Edition progressed, as the field grew ever more extensive, and as molecular explanation of biological function continued to emerge, a different format seemed more appropriate. We felt that users of this treatise would be better served if enzymes were grouped by their biological function instead of by the nature of the reaction catalyzed. The objective for each enzyme type presented remains the same: Outstanding authorities in the field present important information about the molecular nature of enzymes and of the reactions they catalyze, together with a perspective of their biological role.

The information contained thus far in this edition serves as a base for later volumes that will follow in an open-ended series. The first topic to be covered under the new format is the enzymology of nucleic acids. Volume XIV is one of two on this topic. The volumes have been planned with the help of a fine Advisory Board composed of I. Robert Lehman, Martin Gellert, and Charles C. Richardson.

Volumes XIV and XV will give authoritative coverage of the enzymes that make, modify, cleave, recombine, repair, and degrade the nucleic acids. This enzymology makes possible the remarkable isolation and restructuring of DNA and RNA and allows penetrating experimentation about their biological function. Such achievements are at the core of a biological revolution.

Volume XIV covers all enzymes with DNA as the primary substrate or product except DNA ligases, which will be treated with the RNA ligases

in Volume XV.

As with previous volumes, the quality of the present volume is gratifying and was achieved because nearly all of the first-choice contributors agreed to participate. Also, in keeping with a tradition already established for "The Enzymes," the volume is timely. All manuscripts were received within a period of several months. Volume XIV was ready for distribution in less than a year from the time the first manuscript was received. The splendid cooperation of the authors and the publisher made this possible.

Preparation of the volume was greatly facilitated by the capable participation of Lyda Boyer as Assistant Editor. Also, I take pleasure in acknowledging the warm and professional interest and cooperation of the staff of Academic Press.

Paul D. Boyer

Contents

9. Type I Restriction Enzymes

BRIAN ENDLICH AND STUART LINN

10. Type II Restriction Enzymes

ROBERT D. WELLS, RONALD D. KLEIN, AND C. K. SINGLETON

11. Endonucleases Specific for Single-Stranded Polynucleotides

I. ROBERT LEHMAN

17. Eukaryotic DNA Kinases

STEVEN B. ZIMMERMAN AND BARBARA H. PHEIFFER

18. Type I DNA Topoisomerases

JAMES C. WANG

19. DNA Gyrase and Other Type II Topoisomerases

MARTIN GELLERT

20. DNA Unwinding Enzymes

MALCOLM L. GEFTER

26. DNA Base-Insertion Enzymes (Insertases)

ZVI LIVNEH AND JOSEPH SPERLING

27. DNA Glycosylases

BRUCE K. DUNCAN

Section I

DNA Polymerases and Related Enzymes