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The Enzymes

VOLUME IX

GROUP TRANSFER

Part B

**PHOSPHORYL TRANSFER
ONE-CARBON GROUP TRANSFER
GLYCOSYL TRANSFER
AMINO GROUP TRANSFER
OTHER TRANSFERASES**

Third Edition



THE ENZYMES

Edited by PAUL D. BOYER

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Volume IX

GROUP TRANSFER

Part B

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THIRD EDITION



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Preface

Volumes VIII and IX of this treatise deal with the important and versatile enzymes that catalyze the transfer of a variety of chemical groups. The most extensively studied are enzymes catalyzing phosphoryl group transfer from ATP to various acceptors, known by their trivial name as kinases; thirteen separate chapters on kinases appear in the two volumes. Volume VIII also includes a general chapter dealing with the chemical basis of phosphoryl transfer. Intramolecular phosphoryl transfer was covered earlier in Volume VI with the isomerases, and phosphoryl transfer by phosphatases was covered in Volume IV with the hydrolases.

Another class of transferases of prime metabolic importance are those catalyzing transfer of one-carbon groups. These are covered in this volume. Prominent consideration is given the catalytic versatility of folic acid. Aspartate transcarbamylase also falls within this group because of the elegant researches on its separate catalytic and regulatory subunits that introduced new principles into enzymology. One-carbon group transfer also includes some molecular information about methylation of DNA; rapid growth is anticipated in this area.

As representative of the widespread occurrence of transfer of glycosyl moieties, some key enzymes of carbohydrate metabolism and biosynthesis appear in these volumes. Other miscellaneous group transfer reactions complete the coverage.

As with previous volumes, the principal criterion for inclusion as a separate chapter is considerable information at the molecular level about either the enzyme or the process catalyzed. Response of the best-qualified authors in the field continues to be gratifying. For nearly all the chapters, the author is the first choice of the Advisory Board and the Editor. It is to these authors that the reader is indebted for the excellent coverage. Also it is a pleasure to extend appreciation to the members of the Advisory Board for their invaluable assistance in planning the volumes.

The continued fine professional work by the staff of Academic Press is clearly evident in the product produced.

PAUL D. BOYER

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