Transaminases

Edited by

Philipp Christen

David E. Metzler

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A WILEY-INTERSCIENCE PUBLICATION

John Wiley & Sons
New York • Chichester • Brisbane • Toronto • Singapore

Library of Congress Cataloging in Publication Data:

(Main entry under title)

Transaminases.

(Biochemistry ; v. 2)
"A Wiley-Interscience publication."
Includes bibliographical references and index.
1. Aminotransferases. I. Christen, Philipp, 1937- . II. Metzler, David E. III. Series: Biochemistry (John Wiley & Sons) ; v. 2.

QP606.A43T73 1984 574.19'25 84-3712
ISBN 0-471-08501-4

Printed in the United States of America

10 9 8 7 6 5 4 3 2 1

Transaminases

Biochemistry

A Series of Monographs

Editor: ALTON MEISTER. Cornell University Medical College, New York

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Preface

This book is the first comprehensive treatise on transaminases. It is written almost half a century after the discovery of transamination as a metabolic reaction and the detection of vitamin B_6, the precursor of the cofactor pyridoxal-5′-phosphate. The broad scope and the depth of insight achieved through investigation of the structural, mechanistic, and functional aspects of transaminases are reflected in this review of present knowledge. The text covers not only the chemical properties and the biological and medical significance of the various transaminases but also the chemical, spectroscopic, and metabolic aspects of the coenzymes pyridoxal phosphate and pyridoxamine phosphate. Transaminases have been the most extensively studied pyridoxal phosphate-dependent enzymes, and the aspartate aminotransferases are the only pyridoxal phosphate-dependent enzymes acting on amino acids whose spatial structures are known in atomic detail. For these reasons we hope that the book will be a source of reference not only in the field of transaminases but of vitamin B_6-dependent enzymes in general. In the coming decades, structural and mechanistic comparisons of the various groups of pyridoxal phosphate-dependent enzymes will doubtless continue to be a fascinating endeavor. Such comparisons may allow the tracing of the evolution not only of the protein structures but also of the mechanisms of catalysis used by these enzymes with their diverse reaction and substrate specificities.

The title of the book is *Transaminases*, the older well-established name for enzymes catalyzing transamination reactions. Within the text, however, we have more often used the name "aminotransferase," which is preferred by the Nomenclature Committee of the International Union of Biochemistry.

We would like to thank Alton Meister, Alexander E. Braunstein, Esmond E. Snell, and W. Terry Jenkins for their advice offered at various stages in the

development of this book. We are also grateful to all the authors for their contributions and their cooperation.

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Zurich, Switzerland
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September 1984

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