INTRODUCTION TO BIOCHEMICAL TOXICOLOGY

Edited by

Ernest Hodgson and Frank E. Guthrie

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Interdepartmental Program in Toxicology
North Carolina State University, Raleigh, North Carolina

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Preface

As a result of a training program in environmental and biochemical toxicology, funded by National Institute of Environmental Health Sciences Training Grant ES-07046, a course in Biochemical Toxicology has been taught at North Carolina State University for the past several years. A disadvantage to both students and teachers has been the lack of an adequate textbook for this subject. Although several pharmacology texts contain much excellent material, they are not directed toward considerations of toxicants per se. The present book is aimed at the senior–beginning graduate student level and is largely confined to considerations of the biochemistry of toxicants, their uptake, distribution, metabolism, mode of action, and elimination.

The editors share the view that an introductory text must present fundamental information in as uncomplicated a manner as possible. For this reason, the book may seem too simple to the advanced student. To further readability, references have been deleted. However, a list of suggested readings at the end of each chapter will permit students to extend their knowledge in any of the areas covered. For a reference work with an extensive bibliography the reader is directed to *Biochemical Toxicology* by A. de Bruins (Elsevier, 1976).

The book should be easily understood by any student with adequate background in biology and chemistry, including biochemistry. It has been our experience that when a fundamental understanding of biochemistry is lacking, the student should be advised to postpone an undertaking in biochemical toxicology.

Because this is a new venture in a field not previously covered by a separate text, future editions might well be quite different from the present one. To ensure improvement as well as change the editors would welcome constructive criticism and suggestions not only on the material presented but also on the choice of material to present. The views of those using the book for instructional purposes would be of especial value.

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Ernest Hodgson
Frank E. Guthrie

Raleigh, North Carolina

Contributors

DAUTERMAN, WALTER C.
Department of Entomology and Toxicology Program, North Carolina State University, Raleigh, N. C. 27650

de SERRES, FREDERICK J.
Office of the Director, National Institute of Environmental Health Sciences, P. O. Box 12233, Research Triangle Park, N. C. 27709

DONALDSON, WILLIAM E.
Department of Poultry Science and Toxicology Program, North Carolina State University, Raleigh, N. C. 27650

GRALLA, EDWARD J.
Chemical Industry Institute of Toxicology, P. O. Box 12137, Research Triangle Park, N. C. 27709

GROSCH, DANIEL S.
Department of Genetics and Toxicology Program, North Carolina State University, Raleigh, N. C. 27650

GUTHRIE, FRANK E.
Department of Entomology and Toxicology Program, North Carolina State University, Raleigh, N. C. 27650

HODGSON, ERNEST
Department of Entomology and Toxicology Program, North Carolina State University, Raleigh, N. C. 27650

HOLBROOK, DAVID J., JR.
Department of Biochemistry and Nutrition, School of Medicine, University of North Carolina, Chapel Hill, N. C. 27514

KULKARNI, ARUN P.
Department of Entomology and Toxicology Program, North Carolina State University, Raleigh, N. C. 27650

MAILMAN, RICHARD B.
Department of Psychiatry and Biological Sciences Research Center, University of North Carolina School of Medicine, Chapel Hill, N. C. 27514

MAIN, A. RUSSELL
Department of Biochemistry and Toxicology Program, North Carolina State University, Raleigh, N. C. 27650

MATTHEWS, H. B.
Pharmacokinetics Branch, National Institute of Environmental Health Sciences, P. O. Box 12233, Research Triangle Park, N. C. 27709

MORELAND, DONALD E.
U. S. Department of Agriculture, Departments of Crop Science and Botany and Toxicology Program, North Carolina State University, Raleigh, N. C. 27650

TUEY, DANIEL B.
Biometry Branch, National Institute of Environmental Health Sciences, P. O. Box 12233, Research Triangle Park, N. C. 27709

Abbreviations

These abbreviations are used throughout the book. Abbreviations used in a single chapter are not included but are defined on initial use.

ACTH	adrenocorticotropic hormone
AChE	acetylcholinesterase
ATP	adenosine triphosphate
AMP	adenosine monophosphate
BuCh	butyrylcholine
BuChE	butyrylcholinesterase
cAMP	cyclic AMP
cGMP	cyclic GMP
ChE	cholinesterase
CoA	coenzyme A
CoQ	coenzyme Q
DAO	diamine oxidase
DNP	2,4-dinitrophenol
DPIP	2,6-dichlorophenolindophenol
ED_{50}	median effective dose
EF-2	elongation factor 2
EPA	Environmental Protection Agency
FAD	flavin adenine dinucleotide
FDA	Food and Drug Administration
FFA	free fatty acids
FMN	flavin mononucleotide
FP	flavoprotein
GABA	γ-aminobutyric acid
GMP	guanosine monophosphate
GSH	reduced glutathione
GTP	guanosine triphosphate
LD_{50}	lethal dose for 50% of population
MAO	monoamine oxidase
PAM	pyridine aldoxime methiodide
PCB	polychlorinated biphenyl
Pi	inorganic phosphate
PMS	phenazine methosulfate
TCDD	2,3,7,8-tetrachlorodibenzo-*p*-dioxin
UDP	uridine diphosphate
UDPGA	uridine diphosphate glucuronic acid
UMP	uridine monophosphate
UTP	uridine triphosphate
VLDLP	very low density lipoprotein

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