

*Enzyme Systems that Metabolise Drugs and Other Xenobiotics.*  
Edited by Costas Ioannides  
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# Enzyme Systems that Metabolise Drugs and Other Xenobiotics

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# Enzyme Systems that Metabolise Drugs and Other Xenobiotics

*Edited by*

**Costas Ioannides**

*School of Biomedical and Life Sciences, University of Surrey, Guildford, UK*



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# Foreword

It is now generally recognised that an appreciation of xenobiochemistry is essential for the safe and effective usage of the numerous chemicals exploited by today's Society as medicinal drugs, food additives and agrochemicals. Moreover, such knowledge enhances our understanding of the biohandling of the plethora of chemicals, both synthetic and naturally-occurring, to which we are continuously, and inadvertently exposed, for example through our daily diet, exposure to tobacco products and inhalation of vehicle exhaust fumes.

The last fifty years have witnessed tremendous and unprecedented advances in our understanding of the chemistry and biochemistry governing the biotransformation of xenobiotics, whereby the body rids itself of unwanted, and potentially deleterious, lipophilic xenobiotics by metabolically converting them to more readily excretable hydrophilic metabolites, a process known as detoxication. However, it is now evident that such metabolism is not always beneficial to the living organism, as in some cases the generated metabolites are highly reactive, capable of covalent interaction with critical cellular macromolecules leading to various forms of toxicity, a process known as bioactivation.

The present volume consolidates our current knowledge of the xenobiotic-metabolising enzyme systems. Previous books on the topic were usually restricted to a single enzyme system involved in phase 1 or phase 2 metabolism, whereas this volume, for the first time, brings together under a single cover the majority of enzyme systems utilised in both phases of metabolism. Each chapter discusses critically and in detail one specific enzyme system, dealing with its substrate specificity, underlying mechanism of action emphasising its role in the activation and detoxication of xenobiotics, tissue and species distribution, age-dependent development, sex differences, and the endogenous and exogenous factors that regulate its activity. The authors of each chapter are internationally recognised authorities in their respective fields, having made original contributions to the understanding of their chosen topic.

This book will be invaluable to those in the Chemicals Industry, particularly Pharmaceutical Industry, who investigate the metabolism and pharmacokinetics of new chemicals or investigate possible drug interactions, and those concerned with their safety and risk assessment. The enthusiastic neophyte will also benefit from the wealth of information to be found in this book as well as the postgraduate student pursuing an advanced course in this area.

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