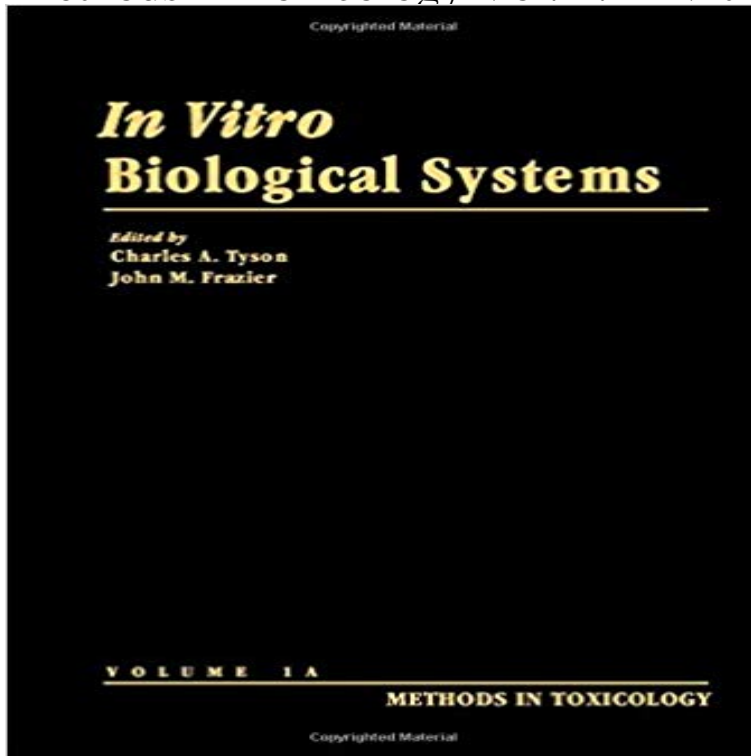


# Methods in Toxicology Vol. 1: In Vitro Biological Systems



There is a pressing need among researchers involved in toxicologic investigation for a series of publications that organizes and presents information on the latest experimental methodologies. To address the needs of researchers in toxicology, toxicologic pathology, pharmacology and clinical biochemistry, this new series *Methods in Toxicology* provides comprehensive descriptions of state-of-the-art methods for evaluating drug and chemical toxicity. Thematic volumes focus on mechanistic approaches to the study of toxicity both in vitro and in vivo, taking advantage of the recent advances in the biological and chemical sciences that allow closer scrutiny of the mechanisms by which chemical agents cause organismic or cellular damage. Each volume begins with an introductory chapter that offers a broad guide to the application of methods addressed in that volume. Subsequent chapters contain detailed descriptions of research protocols, accessible both to experts and those new to toxicologic investigation. Included in each chapter are clearly defined procedures, discussions of limitations of the method, comparative considerations (species, sex, strain), interpretations of results, and explanations of how the methods may serve as alternatives to in vivo testing. Volume 1 examines in vitro biological systems. In vitro methods have provided a valuable tool for toxicological research over the years. Historically, these methods have made significant contributions to our understanding of mechanisms of action toxins and xenobiotic metabolism and, in this context, have provided an indispensable resource for investigative toxicology. More recently, the value of in vitro systems as toxicity tests for chemical safety and hazard evaluation has been recognized and explored. Whether the in vitro approach is employed as a model system for investigative research or as a

toxicity test for risk assessment, a critical component is the biological system. Selection and successful culturing of the appropriate cell, tissue or organ for a particular scientific purpose is essential for a satisfactory outcome. The objective of this volume is to provide both beginning, as well as established, researchers with basic techniques employed by widely recognized scientists to prepare and maintain the biological components of in vitro model systems. The compilation is not intended to be exhaustive but to provide a set of pivotal methods of value to researchers in the field of toxicology. The methods have been organized by organ systems for easy reference. Although in vitro studies in isolated organelles are important in toxicological research, these methods have not been included in this volume.

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