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Nota di contenuto	Contents; Preface; Chapter 1 Current Methods for Prediction of Human Hepatic Clearance Using In Vitro Intrinsic Clearance; 1.1 Introduction; 1.2 Materials; 1.3 Methods; 1.3.1 Thawing the hepatocytes; 1.3.2 Clearance study using a hepatocyte suspension; 1.3.3 Clearance study using a plated hepatocyte culture; 1.3.4 Clearance study using a plated hepatocyte culture under a flow condition; 1.3.5 Sampling for the clearance study; 1.3.6 Sample analysis using LC-MS/MS; 1.4 Data Acquisition, Anticipated Results, and Interpretation; 1.4.1 Hepatocyte suspension and plated hepatocyte system 1.4.2 Physiologically based microfluidic systems1.5 Discussion and Commentary; 1.5.1 Hepatocyte suspension system; 1.5.2 Plated hepatocyte system; 1.5.3 Physiologically based microfluidic systems; 1.6 Summary; References; Chapter 2 Use of Permeability from Cultured Cell Linesand PAMPA System and Absorption from Experimental Animals for the Prediction of Absorption in Humans; 2.1 Introduction; 2.2 Materials; 2.3 Methods; 2.3.1 Cultured cell system; 2.3.2 PAMPA system; 2.3.3 In vivo absorption measurements; 2.4 Data Acquisition, Anticipated Results, and Interpretation; 2.4.1 Data analysis 2.4.2 Results and interpretation2.5 Discussion and Commentary; 2.5.1

Cell culture and PAMPA systems; 2.5.2 Absorption in experimental animals; 2.5.3 Rats; 2.5.4 Dogs; 2.5.5 Monkeys; 2.6 Summary; References; Chapter 3 Aggregating Brain Cell Cultures for Neurotoxicity Tests; 3.1 Introduction; 3.2 Experimental Design; 3.3 Materials; 3.3.1 Animals; 3.3.2 Special equipment; 3.3.3 Reagents; 3.3.4 Preparation of solutions and media; 3.4 Methods; 3.4.1 Washing and sterilizing the glassware; 3.4.2 Cell isolation and culture preparation 3.4.3 Maintenance of aggregating brain cell cultures (media replenishment and subdivision) 3.4.4 Preparation and treatment of replicate cultures; 3.4.5 Harvest of replicate cultures for various analytical procedures; 3.4.6 Examples of sample preparation and use for various analytical procedures; 3.4.7 Data Analysis; 3.5 Anticipated Results; 3.6 Discussion and Commentary; 3.7 Application Notes; 3.8 Summary Points; Acknowledgments; References; Chapter 4 Approaches Towards a Multiscale Model of Systemic Inflammation in Humans; 4.1 Introduction; 4.2 Materials 4.2.1 Human endotoxin model and data collection 4.3 Methods; 4.3.1 Transcriptional dynamics and intrinsic responses; 4.3.2 Modeling inflammation at the cellular level; 4.3.3 Modeling inflammation at the systemic level; 4.4 Results; 4.4.1 Elements of the multiscale host response model of human inflammation; 4.4.2 Estimation of relevant model parameters; 4.4.3 Qualitative assessment of the model; 4.5 Conclusions; Acknowledgments; References; Chapter 5 A Liposome Assay for Evaluating the Ocular Toxicity of Chemicals; 5.1 Introduction; 5.2 Experimental Design; 5.3 Materials; 5.4 Methods 5.4.1 Preparation of calcein-loaded liposomes

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## Sommario/riassunto

Written and edited by recognized experts in the field, the new Artech House Methods in Bioengineering book series offers detailed guidance on authoritative methods for addressing specific bioengineering challenges. Offering a highly practical presentation of each topic, each book provides research engineers, scientists, and students with step-by-step procedures, clear examples, and effective ways to overcome problems that may be encountered. Providing alternatives to animal testing is one of the hottest topics in biomedical research, and this groundbreaking volume addresses this critical issues head on. This unique book presents techniques and methods at the forefront of scientific research that have the potential to replace certain whole animal tests. Moreover, this book provides a platform where other widely accepted techniques and scientific advancements can be collated into a concise set of methods that can be implemented within both academic and industrial communities.

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