
Contents

Preface	v
Contributors	xi
1 Cytochrome P450 Nomenclature, 2004 David R. Nelson	1
2 Spectral Analyses of Cytochromes P450 John B. Schenkman and Ingela Jansson	11
3 Establishment of Functional Human Cytochrome P450 Monooxygenase Systems in <i>Escherichia coli</i> Michael P. Pritchard, Lesley McLaughlin, and Thomas Friedberg	19
4 Purification of Cytochromes P450: <i>Products of Bacterial Recombinant Expression Systems</i> F. Peter Guengerich and Martha V. Martin	31
5 Expression of Recombinant Flavin-Containing Monooxygenases in a Baculovirus/Insect Cell System Azara Janmohamed, Prapimpuk Thaunsukon, Elizabeth A. Shephard, and Ian R. Phillips	39
6 Cytochrome P450 Reconstitution Systems Hiroshi Yamazaki and Tsutomu Shimada	61
7 Catalytic Assays for Human Cytochrome P450: <i>An Introduction</i> Thomas K. H. Chang and David J. Waxman	73
8 Enzymatic Analysis of cDNA-Expressed Human CYP1A1, CYP1A2, and CYP1B1 With 7-Ethoxyresorufin as Substrate Thomas K. H. Chang and David J. Waxman	85
9 Spectrofluorometric Analysis of CYP2A6-Catalyzed Coumarin 7-Hydroxylation David J. Waxman and Thomas K. H. Chang	91
10 Determination of CYP2B6 Component of 7-Ethoxy-4-Trifluoromethylcoumarin <i>O</i> -Deethylation Activity in Human Liver Microsomes Thomas K. H. Chang, Charles L. Crespi, and David J. Waxman	97

11	High-Performance Liquid Chromatography Analysis of CYP2C8-Catalyzed Paclitaxel 6 α -Hydroxylation Charles L. Crespi, Thomas K. H. Chang, and David J. Waxman	103
12	Determination of CYP2C9-Catalyzed Diclofenac 4'-Hydroxylation by High-Performance Liquid Chromatography Charles L. Crespi, Thomas K. H. Chang, and David J. Waxman	109
13	CYP2C19-Mediated (S)-Mephenytoin 4'-Hydroxylation Assayed by High-Performance Liquid Chromatography With Radiometric Detection Charles L. Crespi, Thomas K. H. Chang, and David J. Waxman	115
14	CYP2D6-Dependent Bufuralol 1'-Hydroxylation Assayed by Reverse-Phase Ion-Pair High-Performance Liquid Chromatography With Fluorescence Detection Charles L. Crespi, Thomas K. H. Chang, and David J. Waxman	121
15	Spectrophotometric Analysis of Human CYP2E1-Catalyzed <i>p</i> -Nitrophenol Hydroxylation Thomas K. H. Chang, Charles L. Crespi, and David J. Waxman	127
16	Thin-Layer Chromatography Analysis of Human CYP3A-Catalyzed Testosterone 6 β -Hydroxylation David J. Waxman and Thomas K. H. Chang	133
17	Determination of CYP4A11-Catalyzed Lauric Acid 12-Hydroxylation by High-Performance Liquid Chromatography With Radiometric Detection Charles L. Crespi, Thomas K. H. Chang, and David J. Waxman	143
18	An Isocratic High-Performance Liquid Chromatography Assay for CYP7A1-Catalyzed Cholesterol 7 α -Hydroxylation David J. Waxman and Thomas K. H. Chang	149
19	Use of 7-Ethoxycoumarin to Monitor Multiple Enzymes in the Human CYP1, CYP2, and CYP3 Families David J. Waxman and Thomas K. H. Chang	153
20	Benzydamine <i>N</i> -Oxygenation as a Measure of Flavin-Containing Monooxygenase Activity Catherine K. Yeung and Allan E. Rettie	157

21	Prochiral Sulfoxidation as a Probe for Flavin-Containing Monooxygenases Catherine K. Yeung and Allan E. Rettie	163
22	Targeting Antipeptide Antibodies Toward Cytochrome P450 Enzymes Robert J. Edwards	173
23	The Human Cytochrome P450 Allele Nomenclature Committee Web Site: <i>Submission Criteria, Procedures, and Objectives</i> Sarah C. Sim and Magnus Ingelman-Sundberg	183
24	Genotyping for Cytochrome P450 Polymorphisms Ann K. Daly, Barry P. King, and Julian B. S. Leathart	193
25	Hepatocyte Cultures in Drug Metabolism and Toxicological Research and Testing Tamara Vanhaecke and Vera Rogiers	209
26	Isolation of Rat Hepatocytes Peggy Papeleu, Tamara Vanhaecke, Tom Henkens, Greetje Elaut, Mathieu Vinken, Sarah Snykers, and Vera Rogiers	229
27	Rat Hepatocyte Cultures: <i>Conventional Monolayer and Cocultures With Rat Liver Epithelial Cells</i> Tom Henkens, Tamara Vanhaecke, Peggy Papeleu, Greetje Elaut, Mathieu Vinken, Sarah Snykers, and Vera Rogiers	239
28	Rat Hepatocyte Cultures: <i>Collagen Gel Sandwich and Immobilization Cultures</i> Mathieu Vinken, Greetje Elaut, Tom Henkens, Peggy Papeleu, Sarah Snykers, Tamara Vanhaecke, and Vera Rogiers	247
29	Hepatocytes in Suspension Greetje Elaut, Peggy Papeleu, Mathieu Vinken, Tom Henkens, Sarah Snykers, Tamara Vanhaecke, and Vera Rogiers	255
30	Isolation of Rat Bone Marrow Stem Cells Sarah Snykers, Tamara Vanhaecke, and Vera Rogiers	265
31	Transfection of Primary Cultures of Rat Hepatocytes Mina Edwards, Siew Cheng Wong, Roongsiri Chotpadiwetkul, Despina Smirlis, Ian R. Phillips, and Elizabeth A. Shephard	273
32	Human Hepatocyte Culture Lydiane Pichard, Edith Raulet, Gérard Fabre, Jean Bernard Ferrini, Jean-Claude Ourlin, and Patrick Maurel	283

33	Determination of Cellular Localization of the Expression of Flavin-Containing Monooxygenase Genes in Mouse Tissues by <i>In Situ</i> Hybridization Azara Janmohamed, Ian R. Phillips, and Elizabeth A. Shephard	295
34	Deletion of Genes From the Mouse Genome Using Cre/ <i>loxP</i> Technology Diana Hernandez, Pritpal Chandan, Azara Janmohamed, Ian R. Phillips, and Elizabeth A. Shephard	307
35	Characterization of Targeted Mouse Embryonic Stem Cell Chromosomes: <i>Karyotyping and Fluorescence In Situ Hybridization of Metaphase Spreads</i> Diana Hernandez, Ian R. Phillips, and Elizabeth A. Shephard	321
36	Microinjection of Targeted Embryonic Stem Cells and Establishment of Knockout Mouse Lines for <i>Fmo</i> Genes Diana Hernandez, Anna N. Melidoni, Ian R. Phillips, and Elizabeth A. Shephard	329
37	Use of Reporter Genes to Measure Xenobiotic-Mediated Activation of <i>CYP</i> Gene Transcription Nick Plant	343
Index		355



<http://www.springer.com/978-1-58829-441-8>

Cytochrome P450 Protocols

Phillips, I.R. (Ed.)

2006, XIV, 364 p. 47 illus., Hardcover

ISBN: 978-1-58829-441-8

A product of Humana Press