
Contents

<i>Foreword I by Timothy Tellinghuisen</i>	<i>v</i>
<i>Foreword II by Brett Lindenbach</i>	<i>ix</i>
<i>Preface to the Second Edition</i>	<i>xi</i>
<i>Contributors</i>	<i>xvii</i>

PART I. DETECTION AND QUANTIFICATION OF HCV

1 Detection and Quantification of Serum or Plasma HCV RNA: Mini Review of Commercially Available Assays <i>Helene Le Guillou-Guillemette and Francoise Lunel-Fabiani</i>	3
2 Simultaneous Detection of Anti-HCV Antibody and HCV Core Antigen <i>Filippo Ansaldi and Giancarlo Icardi</i>	15
3 Immunohistochemical Detection of HCV Proteins in Liver Tissue <i>Oivier Galy, Isabelle Vincent, Philippe Chevallier, Nicole Lyandrat, and Isabelle Chemin</i>	25

PART II. HCV NOMENCLATURE, GENOTYPING, AND QUASISPECIES

4 Nomenclature and Numbering of the Hepatitis C Virus <i>Carla Kuiken and Peter Simmonds</i>	33
5 A Real-Time Taqman® Method for Hepatitis C Virus Genotyping and Methods for Further Subtyping of Isolates <i>Kathryn J. Rolfe, Tim G. Wreghitt, Graeme J. M. Alexander, and Martin D. Curran</i>	55
6 Characterization of HCV Quasispecies in the Hypervariable Region 1 (HVR 1) by In Vitro Translation and Mass Spectrometry <i>Carmen Yea, Melissa Ayers, and Raymond Tellier</i>	73

PART III. HCV REPLICATION IN VITRO

7 Purification and Crystallization of NS5A Domain I of Hepatitis C Virus <i>Joseph Marcotrigiano and Timothy Tellinghuisen</i>	85
8 NS5A Phosphorylation and Hyperphosphorylation <i>Petra Neddermann</i>	95
9 Preparation and Handling of Hepatitis C Viral Proteins NS3 and NS5B for Structural Studies <i>Stefania Di Marco and Andrea Carfi</i>	III

10	Structural and Functional Analysis of the HCV p7 Protein <i>Nathalie Saint, Roland Montserret, Christophe Chipot, and François Penin</i>	125
11	HCV Replicons: Overview and Basic Protocols <i>Volker Lohmann</i>	145
12	Reverse Transcription PCR-Based Sequence Analysis of Hepatitis C Virus Replicon RNA <i>Timothy L. Tellinghuisen and Brett D. Lindenbach</i>	165
13	Studying HCV RNA Synthesis In Vitro with Replication Complexes <i>Wengang Yang and Mingjun Huang</i>	177
14	Proteomics Study of the Hepatitis C Virus Replication Complex <i>Kyungsoo Chang, Tianyi Wang, and Guangxiang Luo</i>	185
15	Investigation of the Hepatitis C Virus Replication Complex <i>Volker Brass, Rainer Gosert, and Darius Moradpour</i>	195
16	Regulation of Interferon Regulatory Factor 3-Dependent Innate Immunity by the HCV NS3/4A Protease <i>Kui Li</i>	211
17	Selection and Characterization of Drug-Resistant HCV Replicons In Vitro with a Flow Cytometry-Based Assay <i>Jason M. Robotham, Heather B. Nelson, and Hengli Tang</i>	227
18	High-Throughput Screening of HCV RNA Replication Inhibitors by Means of a Reporter Replicon System <i>Weidong Hao and Rohit Duggal</i>	243
19	Inhibition of HCV Replication by Small Interfering RNA <i>Ratna B. Ray and Tatsuo Kanda</i>	251
PART IV. HCV ENTRY AND INFECTION		
20	Cellular Receptors and HCV Entry <i>Mike Flint and Donna M. Tscherne</i>	265
21	Studying HCV Cell Entry with HCV Pseudoparticles (HCVpp) <i>Birke Bartosch and François-Loïc Cosset</i>	279
22	Screening of Small-Molecule Compounds as Inhibitors of HCV Entry <i>Jian-Ping Yang, Demin Zhou, and Flossie Wong-Staal</i>	295
23	Isolation of JFH-1 Strain and Development of an HCV Infection System <i>Takaji Wakita</i>	305
24	Measuring HCV Infectivity Produced in Cell Culture and In Vivo <i>Brett D. Lindenbach</i>	329
25	Genotype 1a HCV (H77S) Infection System <i>MinKyung Yi and Stanley M. Lemon</i>	337

26	Full-Length Infectious HCV Chimeras <i>Thomas Pietschmann</i>	347
27	Adaptation of the Hepatitis C Virus to Cell Culture <i>Artur Kaul, Ilka Wörz, and Ralf Bartenschlager</i>	361
28	Primary Human Hepatocyte Culture for HCV Study <i>Haizhen Zhu, John Elyar, Robin Foss, Alan Hemming, Eric Hall, Edward L. LeCluyse, and Chen Liu</i>	373
29	In Vivo Study of HCV in Mice with Chimeric Human Livers <i>Norman M. Kneteman and Christian Toso</i>	383
PART V. IMMUNITY AND MODELING		
30	Determination of HCV-Specific T-Cell Activity <i>Joo Chun Yoon and Barbara Rehermann</i>	403
31	Analysis of HCV-Specific T Cells by Flow Cytometry <i>Masaaki Shiina and Barbara Rehermann</i>	415
32	Detection of Neutralizing Antibodies with HCV Pseudoparticles (HCVpp) <i>Marlène Dreux and François-Loïc Cosset</i>	427
33	Mathematical Modeling of HCV Infection and Treatment <i>Harel Dahari, Emi Shudo, Ruy M. Ribeiro, and Alan S. Perelson</i>	439
	Index	455

Hepatitis C

Methods and Protocols

Tang, H. (Ed.)

2009, XXII, 466 p. 74 illus., 1 illus. in color., Hardcover

ISBN: 978-1-58829-970-3

A product of Humana Press