
Preface to the Second Edition

The first edition of this book, published in 1998, presented a large collection of authoritative protocols from the first decade of HCV research, outlining clinical diagnostics, genotyping, and molecular biology of the virus. One of the largest obstacles to productive research on the HCV life cycle had been the lack of a robust cell-culturing system capable of HCV replication and infection. We now possess such systems, and as a result, the past decade has witnessed an explosion of innovative research directed at understanding HCV biology and, more specifically, RNA replication in cell-culture replicon models. More recent advances in the production of infectious particles and infection of cultured hepatoma cells as well as chimpanzees will surely open a new chapter of studies examining the full life cycle of the virus by means of the new infection model. This advance is especially important for traditional virologists and immunologists, as they are now able to study viral assembly, entry, and pathogenesis as well as the innate and adapted immunity of the host. In other words, we have finally reached a point where virtually all the important questions regarding this human pathogen and its interaction with the host can be addressed in a laboratory setting.

This new edition of *Hepatitis C* strives to reflect this major thrust in the basic research of HCV and to provide a compilation of cutting-edge research techniques that are currently used by HCV labs worldwide to study HCV infection and replication in vitro. In addition, in keeping with the style of the first edition, the book opens with updated chapters discussing important methods of clinical detection and quantification of HCV infection. These are followed by several chapters detailing current systems for classifying HCV genotypes, numbering HCV sequences, and determining quasispecies. Finally, the volume concludes with protocols for the characterization of immune responses to HCV and a unique chapter describing mathematical modeling of HCV RNA kinetics. We hope that both basic scientists and clinical researchers will find this book useful as a reference guide to lab research using HCV as a model.

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